```
AR117793 Sequence
AR149463 Sequence
AR117794 Sequence
AR117794 Sequence
AR149465 Sequence
AR149465 Sequence
AR149465 Sequence
AR149465 Sequence
AR149465 Sequence
AR149465 Sequence
AR14949335 Homo sapi
AF07544 Rhinocero
AY007544 Rhinocero
AY007542 Dicerothia
AY007542 Dicerothia
AY007544 Rhinocero
AY007549 Homo sapi
AF144242 Homo sapi
AF1749337 Homo sapi
AF1740864 Homo sapi
AF1760864 Homo sapi
AF176064 Homo sapi
AF17606 Homo sapi
AF17606 Homo sapi
AF17606 Homo sapi
AF17606 Homo sapi
AF17634 Rattus no
AF17634 Rattus no
AF17634 Rattus no
AF176654 Sequence
AR146465 Sequence
AR17799 Sequence
AR17799 Sequence
AR17799 Sequence
AR17799 Sequence
AR16573 Sequence
AR16573 Sequence
AR16573 Sequence
AR164444 Homo sapi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PAT 16-MAY-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Unknown.
Unclassified.
Unclassified.
I bases I to 1440)
Thomas W.J. Drayna,D.T., Feder,J.N., Gnirke,A., Ruddy,D.,
Tsuchihashi,Z. and Wolff,R.K.
Hereditary hemochromatosis gene products
Patent: US 6140305-A 9 31-OCT-2000;

Location Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 1440;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 1440;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 9 from patent US 6140305. AR117793 AR117793.1 GI:14098600
                                                                                                                                                                                                                                                                                          HSA249336
HSA249337
AF14424
AF079408
RNHERHAEM
MMU66849
AF079409
AF079409
AF150664
                                                      AR117794
AR117795
AR149464
AR149465
AR117796
AR117796
AR149466
HSA249335
AF115265
                                                                                                                                                                                                                                                                                                                                                                                                                                                           AF144240
AF008587
AF149804
AF176534
AF115264
AF114243
HSHLAH2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AR117789
AR117790
AR149459
AR149460
HSHFE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AL359892
AR036572
AR036573
AR036574
   AR117793
AR149463
HSU60319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /organism="unknown"
355 c 407 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100.08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          789
804
819
735
735
10825
10825
10825
10825
10825
10825
10825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            246240
246240
246240
                                                          114040
114440
114440
114440
113320
113320
110033
110033
110033
110033
110033
110033
110033
110033
110033
110033
110033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     246282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.00000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.00000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.00000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0000

0.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Unknown.
   1440
14440
14440
1438.4
1438.4
1438.4
1438.6
11438.4
11438.4
11438.4
11438.4
1189
1189
897
                                                                                                                                                                                                                                                         8996.8
8993.8
745.7
775.2
711.4
612.8
612.8
612.8
612.8
612.8
612.8
612.8
612.8
612.8
612.8
612.8
613.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.8
614.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        321
321
321
321
321
321
321
320.4
319.4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
AR117793
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
       O
                                                                                                                         June 19, 2002, 06:38:34 ; Search time 3675.59 Seconds (Without alignments) 8198.470 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                  US-09-497-957-9
1440
1 GGGGACACTGGATCACCTAG......TCCTCAAAAGGATTTCCCCA 1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Description
                                                                                                                                                                                                                                                                                                                                                                    3595312
                   GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                               1797656 segs, 10463268293 residues
                                                                                                                                                                                                                                                                                                                                                                 Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                            using sw model
                                                                                                                                                                                                                                                                        IDENTITY_NUC Gapox 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   em_htg_inv:*
em_htg_other:*
em_htgo_inv:*
                                                                                                                                                                                                                                                                                                                                                                                                    Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     em_htg_hum:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query
Match Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gb_ba:*
gb_htg:*
gb_ov:*
gb_ov:*
gb_pat:*
gb_p1:*
gb_p1:*
gb_pr:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gb_un:*
gb_vi:*
em_ba:*
em_fun:*
em_fun:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      em_ov:*
em_pat:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                em_sts:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               em_mu:*
                                                                                              nucleic search,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               em_in:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    em_or:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              em_ro:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    em_un:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           em_ph:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GenEmbl:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score
                                                                                                                                                                                                    Title:
Perfect score:
                                                                                                                                                                                                                                                                          Scoring table:
                                                                                            OM nucleic
                                                                                                                                                                                                                                         Sequence:
                                                                                                                                                                                                                                                                                                                               Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Database
                                                                                                                                 Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Result
```

~

1021	1081	1141	1201	1261	1321	OY 1381 TGCCTGACGACTCTT 	AR149463	DEFINITION Sequence 9 Iron ACCESSION AR149463 VERSION AR149463.1 GI:	SUDRCE UNKNOWN. ORGANISM UNKNOWN. URCLASSIfted. REFERENCE 1 (bases 1 to	AUTHOKS TROMMAS,W.J., Dr TUTLE Method for dete hemochromatosis	a)	347	Query Match Best Local Similarity 1 Matches 1440; Conservati	Qy 1 GGGGACACTGGATCACC	61		181	QY 241 CGGGGCTTCTCCTCTG 
; 0 s	0.0	120 120	180 180	240 240	300	360 360	420	480	540 540	009	099	720 720	780	840 840	006	0 0	1020 1020	1080
0; Gap	BAGAGAGA 60 															AGCCAATGG 960 		
0; Indels	GGGGACACTGGATCACCTAGTGTTTCACAAGCAGGTACCTTCTGCTGTAGGAGAGAGA	ACTAAAGTTCTGAAAGACCTGTTGCTTTTCACCAGGAAGTTTTACTGGGCATCTCCTGAG 	CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCGCCCCCCCAAAGGGTHIHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH	AACGGACATTTAACGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGGC 	CGCCGCTTCTCCTCTGTGTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCTTTTTTTT	CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT	TTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAGAGTCGCC	GTGTGGACCCCCAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC	TGAGTCACAGTCTGAAAGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG 	AAAATCACAACCACAGGAAGGAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAATGC 	AAGAAGACAATACCGAGGCTACTGGAAGTACGGGTATGATGGGCAGGACGACCTTG {{{ }}}}}	AATTCTGCCCTGACACACTGGATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACCAACAACCCALLIIIIIIIIIIIIIIIIIIIII	TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGAGAACAGGGCCTACCTGGAGAGGGACT 	GCCCTGCACAGCTGCAGCAGTTGCTGGAGCTGGGGGAGAGGTGTTTTGGACCAACTAGCGCTALLIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	CTCCTTTGGTGAAGGTGACACATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG 	CCTIGAACTACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG 	ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT 	GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGATATACGTGCCAGGTGGAGCACC
d. No. 0; ismatches	AAGCAGGTACC                AAGCAGGTACC	TCACCAGGAAG              TCACCAGGAAG	GGAGCCATCCC                  GGAGCCATCCC	CAGAGCTGGGG 	GACCGCGGTCC 	TGCCTCAGAGC	GCTGTTCGTGT	CAGTAGAATTT             CAGTAGAATTT	CATGTTCACTG	CACCCTGCAGG	GAAGTACGGGT, 	AGCAGCAGAAC 	CAGGCAGAACA( 	GCTGGGGAGAG 	GACCTCTTCAG' 	CATGAAGTGGC 	ATTGCCCAATG( 	AGAGCAGAGATA 
100.0%; Pred.	CTAGTGTTTCAC	ACCTGTTGCTTT                   ACCTGTTGCTTT	AGGGTGACTTCT 	SGACGTGCGGC 	BATGCTTTGCA 	CTCTTCATGGG	GTGGATGACCA              GTGGATGACCA	CCATGGGTTTC	NGGGTGGGATCA                NGGGTGGGATCA	AAGGAGTCCCA               AAGGAGTCCCA	GAGGCTACTG	CTGGATTGGAG 	AAGATTCGGGC             :AAGATTCGGGC	CAGTTGCTGGA                          CAGTTGCTGGA	ACACATCATGT 	CAGAACATCAC 	CCTAAAGACGT  -	ACCCCTGGGGA
Similarity 0; Conservati	ACTGGATCACC	GTTCTGAAAGA 	SCAATAGCTGT? 	AGATTTAACGO	TTCTCCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTC	CTCTGCACTAC	CTTTGGGCTAC	AGCCCCGAACT              AGCCCCGAACT	AGAGTCTGAAA 	ACAACCACAGG	ACAACAGTACC	GCCCTGACACACACACACACACACACACACACACACACAC	'GGGAAAGGCAC                    GGGAAAGGCAC	CACAGCTGCAG	TGGTGAAGGTC                TGGTGAAGGTC	ACTACTACCCC	AGGAGTTCGAA 	CCTTGGCTGT
44	1 GGGGAC 	61 ACTAAA        61 ACTAAA	121 CCTAGG         121 CCTAGG	181 AAGCGG               181 AAGCGG	241 CGGCGC 241 CGGCGC	301 CACACT        301 CACACT	361 TTGAAG        361 TTGAAG	421 GTGTGG                 421 GTGTGG	481 TGAGTC        481 TGAGTC	541 AAAATC        541 AAAATC	601 AAGAAG                 AAGAAG	661 AATTCI        661 AATTCI	721 TGGAGT        721 TGGAGT	781 GCCCTG 	841 CTCCTT 	901 CCTTGA                 901 CCTTGA	961 ATGCCA         961 ATGCCA	
Best Loca Matches ]																		1631
	Oy Op	QY Db	Qy Db	VO do	oy Db	Qy Dp	ςς Dp	Qy Dp	\$ 8 8	ζο Q	Oy Dp	Qy Db	oy Dp	Oy Dp	oy O	Oy Dp	Qy GD	Οy

ö PAT 08-AUG-2001 1200 TEGATITIAGCCTTCTCTGTTCATTTCCTCAAAAGGTTTCCCCA 1440 ACCCCCTGGGGAAGAGCAGAGATATACGTGCCAGGTGGAGCACC 1080 SAATIGCIGTITITICICGICATCTIGITICATIGGAATTITGTICA 1200 GCAGGGTTCAAGAGGAGCCATGGGGCACTACGTCTTAGCTGAAC 1260 SAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAACATAGAAAT 1380 Drayna,D.T., Feder,J.N., Gnirke,A., Ruddy,D., and Wolff.R.K. termining the presence or absence of a hereditary is gene mutation 28594-A 9 08-MAY-2001; 240 AGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGGCCCCCAAAAG 180 Gaps GGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCCAGGC ö linear DNA ų 331 1440 bp om patent US 6228594. tion/Qualifiers nism="unknown" 355 c 407 g I:15114054 5 1440)

Wed Jun 19 11:20:21 2002

360	420	480	4.	0 4		720	∞	4 4	006	096	1020	1080	1140	1200	1260	1320	1380 1380
CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT	TTGAAGCTTTGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAGAGTCGCC 	GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCGGCTGCAGC	TGAGTCAGAGTCTGAAAGGGTGGCATCACATGTTCACTGTTGACTTCTGGACTATATGG	AATCACAACCACAGCAAGGAGTCCCACACCTCCTGTTGATGTTGATGTTATGTGAATCACAAACCACACAGGACTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGTTTTTTTT	SACAACAGTACCGAGGGCTACTGGAAGTACGGGTCATCCIGGGGCTGTGGAAATG	TOTACCCTACACTACTACTACTACTACTACTACTACTACTAC	TTCGGGCCAGGAGACAGGGCCTACCTGGAGAGGGAC 	ACAAG 	CTCCTTTGGTGAAGGTGACATCATGTGACCTCTTCAGTGACCACTCTACGGGTGTCGGG 	CCTTGAACTACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG 	ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT 	GGATAACCTTGGCTGTACCCCTGGGGAAGAGCAGAGATATACGTGCCAGGTGGAGCACC 	CAGGCCTGGATCAGCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA 	TCTTGTTCA	TAATATTAAGGAAGGAGGGTTCAAGAGGAGCCATGGGGCACTACGTCTTAGCTGAAC 	GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG 	AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAACATAGAAAT 
301	361	421	481	4 4	0 0	9 9	721	781	841	901	961	1021	1081	1141	1201	1261 ( 1261 (	1321
Qy Db	Qy Db	Qy	64 d	0y Ph	QY.	Qy Db	Oy Op	Oy Dp	Qy	Qy Db	Oy Dp	Oy Dp	Qy Db	Qy Dp	Oy Dp	Qy	Oy Dp

```
HSU60319 2727 bp mRNA linear PRI 29-OCT-1997 Homo sapiens haemochromatosis protein (HLA-H) mRNA, complete cds. U60319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product="heemochromatosis protein"
/protein_id="AAC51823.1"
/db_xref="G1:1469790"
/dranslation="MGPRARPALLLMILOTAVLOGRILRSHSLHYLFMGASEQDLGL
SLFEALGYVDDOLFVFYDHESRRYBPRTPWYSSRISSOMWLQLSQSLKGWDHMFTVDF
WTMBNINHSKESHTLQYTLGCEMQEDNSTECTWRYGYDGOPLEFCPRTDLWRAAEP
RAMPTKLEWERHKIRARQNRAYLERDCPAQLQQLLELGRGVLDQQVPELVKYTHHYTS
SVTTLRCRALNYYPONITMKWLKDXQDNDAREEPROYLPNGOGTYCYQGWITLAVPPPGE
SQYTTLRCRALNYYPONITMKWLKDXQDNDAREEPROYLPNGOGTYGQWITLAVPPPGE
SQYTTCHTORDALNYYPONITMKWLKDXQDNDAREEPROYLPNGOGTYGGWITLAVPPPGE
SQYTTCHTORDALNYYPONITMKWLKDXQDNDAREEPROYLPNGOGTYGGWITLAVPPGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                        Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; I (bases 1 to 2727)

Reder,J.N., Gnirke,A., Thomas,W., Tsuchihashi,Z., Ruddy,D.A., Basava,A., Dormishian,F., Doningoy,R., Ellis,M.C., Fullan,A., Hinton,L.M., Jones,N.L., Kimmel,B.E., Krommal,G.S., Lauer,P., Lee,V.K., Loeb,D.B., Mapa,F., McClelland,E., Meyer,N.C., Mintier,G.A., Mooeller,N., Moore,T., Morkang,E., Frass,C.E., Quintana,L., Stranes,S. M., Schatzman,R.C., Brunke,K.J., Drayna,D.T., Risch,N.J., Bacon,B.R. and Wolff,R.K.
Direct Submission
Submitted (10-JUN-1996) Mercator Genetics, 4040 Campbell Ave.,
Menlo Park, CA 94025, USA
Location/Qualifiers
1. 2727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Feder,J.N., Gnirke,A., Thomas,W., Tsuchihashi,Z., Ruddy,D.A., Basava,A., Dormishian,F., Domingo,R., Ellis,M.C., Fullan,A., Hinton,L.M., Jones,N.L., Kinmal,N.E., Kroman,J.G.S., Lauer,P., Lee,V.K., Loeb,D.B., Mapa,F., McClelland,E., Meyer,N.C., Mintier,G.A., Moeller,N., Moore,T., Morkang,E., Prass,C.E., Quintana,L., Stranes,S.M., Schatzman,R.C., Brunke,K.J., Drayna,D.T., Risch,N.J., Bacon,B.R. and Wolff,R.K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 2727;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    hereditary haemochromatosis
Nature Genet. 13 (4), 399-408 (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
100.0%; Score 1440;
Best Local Similarity 100.0%; Pred. No. 0;
Matches 1440; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6 099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="HLA-H"
/note="HFE"
222. 1268
/gene="HLA-H"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SRGAMGHYVLAERE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /map="6p21.3"
1. .2727
                                                                                                                                                                                                                            U60319.1 GI:1469789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2 909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             702
                                                                                                                                                                                                                                                                         human.
                                                                                                                                                                                                                                               KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sonrce
                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
ORIGIN
                                                                                                                                                                                                       ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                            REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
MEDLINE
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
JOURNAL
                                                                                                                                HSU60319
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
    δ
                                          qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     q
```

```
1020
                                                                                                                                                                                                                                                                                                                                                                                                                              1020
                                                                                                                                                                                                                                                                                                                                                                                                                                            GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTGCCAGGTGGAGCACC 1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA 1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1141 TIGGAGTCATCAGIGGAATIGCIGITITITGICGICAICTIGITGATIGGAATITIGITCA 1200
                                                                                                                                                                                                                                                                                                                               840
                                                                                                                                                                                                                                                                                                                                             840
                                                                                                                                                                                                                                                                                                                                                          900
                                                                                                                                                                                                                                                                                                                                                                        900
                                                                                                                                                                                                                                                                                                                                                                                     960
                                                                                                                                                                                                                                                                                                                                                                                                   960
                                                                                                         360
                                                                                                                       360
                                                                                                                                    420
                                                                                                                                                 420
                                                                                                                                                               480
                                                                                                                                                                            480
                                                                                                                                                                                          540
                                                                                                                                                                                                       540
                                                                                                                                                                                                                    900
                                                                                                                                                                                                                                 900
                                                                                                                                                                                                                                               999
                                                                                                                                                                                                                                                            9
                                                                                                                                                                                                                                                                          720
                                                                                                                                                                                                                                                                                       720
                                                                                                                                                                                                                                                                                                                  780
                                                                               300
                                                                                            300
                         180
                                                                                                                                                                                                                                                                                                                                                          CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCCAAAG
                                                                                                                                                               AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGCGGCAGGACCACTTG
                                                                                                                                                                                                                                                                                                                                       CCTTGAACTACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCAATGG
                                                                                                                                                                                                                                                                                                                                                                                                                 ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT
                                                   TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGACAGGGCCCTACCTGGAGAGGGACT
                                                                                                                                                                                                                                                                                                            CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGCTCCTGCAGGGGCGCTTGCTGCGGTT
                                                                                      CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                 TTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAGAGTCGCC
                                                                                                                                            TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                                                                  AAAATCACAACCACAGCAAGGAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                                                                                                                                                                                         AATTCTGCCCTGACACACTGGATTGGAGAGCAGAGAACCCAGGGCCTGGCCCACCAAGC
                                                                                                                                                                                                                                                                                                                               GCCCTGCACAGCTGCAGCTGCTGGAGCTGGGGAGAGGTGTTTTGGACCAACAAGTGC
                                                                                                                                                                             421
                                                                                                                                                                                                                      541
                                                                                                                                                                                                                                   541
                                                                                                                                                                                                                                                              601
                                                                                                                                                                                                                                                                                                      721
                                                                                                                                                                                                                                                                                                                   721
                                                                                                                                                                                                                                                                                                                                781
                                                                                                                                                                                                                                                                                                                                              781
                                                                                                                                                                                                                                                                                                                                                            841
                                                                                                                                                                                                                                                                                                                                                                         841
                                                                                                                                                                                                                                                                                                                                                                                                   901
                                                                                                                                                                                                                                                                                                                                                                                                                               961
                                                                                                                                                                                                                                                                                                                                                                                                                                             1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                          1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1081
                                                                                                                                      361
                                                                                                                                                                                                                                                601
                                                                                                                                                                                                                                                                                        661
                                                                                                                                                                                                                                                                                                                                                                                       901
                                                                                                                                                                                                                                                                                                                                                                                                                 961
                                                                                                                                                                                                                                                                            661
                                                                  181
                                                                                 241
                                                                                                           301
                                                                                                                         301
                                                                                                                                                   361
                                                                                                                                                                421
                                                                                                                                                                                           181
61
             61
                          121
                                        121
                                                      181
                                                                                                                                                                                                                                                                                                                                          Ω
                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                            엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                    g
                                                                                                                                                                                                                              QQ
                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                           Db
Oy
Db
                                                                                                                                                                                                                                                                                                  Q
Dp
                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                 ç
                                                                                           g
                                                                                                                    셤
                                                                                                                                     ò
                                                                                                                                               Q
                                                                                                                                                             ò
                                                                                                                                                                          g
                                                                                                                                                                                       õ
                                                                                                                                                                                                                      ò
ò
            g
                          ò
                                      g
                                                     à
                                                                요
                                                                               ò
                                                                                                       ŏ
```

ö 16-MAY-2001 1440 1440 1380 360 120 180 180 240 240 300 300 360 420 420 120 9 Gaps 9 CTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCAAAAG CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT ACTAAAGTTCTGAAAGACCTGTTGCTTTTCACCAGGAAGTTTTACTGGGCATCTCCTGAG CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCCAAAAG CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGGCGCTTGCTGCGTT , D., AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCCAGGC TAATATTAAGGAAGAAGGCAGGGTTCAAGAGGAGCCATGGGGGCACTACGTCTTAGCTGAAC GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAACATAGAAAT PAT Length 1440 ö (bases 1 to 1440)
Thomas,W.J., Drayna,D.T., Feder,J.N., Gnirke,A., Ruddy, Tsuchihashi,Z. and Wolff.R.K.
Hereditary hemochromatosis gene products
Patent: 185 6140305-A 10 31-0CT-2000;
Location/Qualifiers Indels linear 9 1; DB DNA Score 1438.4; Pred. No. 0; 0; Mismatches AR117794 1440 bp Sequence 10 from patent US 6140305. AR117794 GI:14098700 331 /organism="unknown" 355 c 406 g Query Match
Best Local Similarity 99.9%;
Matches 1439; Conservative 1440 Unknown. Unclassified. ø 348 Unknown DEFINITION ACCESSION VERSION KEYWORDS SOURCE BASE COUNT ORIGIN ORGANISM Н 61 241 301 361 Н 61 121 121 181 301 361 1201 1381 1381 181 241 1201 1261 1321 1321 1261 JOURNAL REFERENCE AUTHORS RESULT AR117794 FEATURES TITLE g ò g δy DB ŏ Q δ qq δy ŏ ò q g ò g òγ g ò οy

```
DEFINITION
                                                                                                                                                         a
                                                                                                                                                                                 g
                                                                                                                                                                                                         Q
                                                                                                                                               ð
                                                                                                                                                                      οy
                                                                                                                                                                                              ò
                                                                                                                                                                                                                       οy
                                                                                                                                                                                                                                  С
                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                          qq
                                                                                                                                                                                                                                                                        δy
                                                                                                                                                                                                                                                                                     q
                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                οŽ
                                                                                                                                                                                                                                                                                                                          QΥ
                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                   δy
                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                    Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                            οy
                                                                                                                                                                                                                                   1020
                                                                                                                                                                                                                                               1020
                                                                                                                                                                                                                                                           1080
                                                                                                                                                                                                                                                                                    1140
                                                                                                                                                                                                                                                                                                1140
                                                                                                                                                                                                                                                                                                             1200
                                                                                                                                                                                                                                                                                                                          1200
                                                                                                                                                                                                                                                                                                                                     1260
                                                                                                                                                                                                                                                                                                                                                  1260
                                                                                                                                                                                                                                                                                                                                                              1320
                                                                                                                                                                                                                                                                                                                                                                  1380
                                                                                                                                                                                                                                                                                                                                                                                                                            1440
    480
                480
                             540
                                         540
                                                      900
                                                                              999
                                                                  009
                                                                                           099
                                                                                                       720
                                                                                                                   720
                                                                                                                                780
                                                                                                                                            780
                                                                                                                                                         840
                                                                                                                                                                                 900
                                                                                                                                                                                              900
                                                                                                                                                                                                          960
         GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC
                          TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                   AAAATCACAACCACAGCAAGGAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                            AAGAAGACAACAGTACCGAGGGTACTGGAAGTACGGGTATGATGGGGCAGGACCACCTTG
                                                                                  AATTCTGCCCTGACACACTGGATTGGAGAGCAGCAGGAACCCAGGGCCTGGCCCACCAAGC
                                                                                                           TGGAGTGGGAAAAGGCACAAGATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACT
                                                                                                                                                      GCCCTGCACAGCTGCAGTTGCTGGAGCTGGGGAGAGGTGTTTTGGACCAACAAGTGC
                                                                                                                                                                               CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
                                                                                                                                                                                                                                                         GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTGCCAGGTGGAGCACC
                                                                                                                                                                                                                                                                CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA
                                                                                                                                                                                                                                                                                                          TIGGAGICATCAGIGGAATIGCIGITITIGICGICAICTIGITCAIIGGAATITIGITCA
                                                                                                                                                                                                                                                                                                                 TAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGCACTACGTCTTAGCTGAAC
                                                                                                                                                                                                                                                                                                                                         AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAAACATAGAAAT
                                                                                                                                                                                                                                                                                                                                                                                            TGCCTGACGAACTCCTTGATTTTAGCCTTCTGTTCATTTCCTCAAAAGATTTCCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                    421
                          481
                                      481
  421
                                                   541
                                                                           601
                                                                                        601
                                                                                                     661
                                                                                                                 199
                                                                                                                             721
                                                                                                                                          721
                                                                                                                                                      781
                                                                                                                                                                   781
                                                                                                                                                                               841
                                                                                                                                                                                           841
                                                                                                                                                                                                                                196
                                                                                                                                                                                                                                             196
                                                                                                                                                                                                                                                         1021
                                                                                                                                                                                                                                                                                                          1141
                                                                                                                                                                                                       901
                                                                                                                                                                                                                    901
                                                                                                                                                                                                                                                                     1021
                                                                                                                                                                                                                                                                                 1081
                                                                                                                                                                                                                                                                                              1081
                                                                                                                                                                                                                                                                                                                      1141
                                                                                                                                                                                                                                                                                                                                               1201
                                                                                                                                                                                                                                                                                                                                                            1261
                                                                                                                                                                                                                                                                                                                                                                                    1321
                                                                                                                                                                                                                                                                                                                                                                                                 1321
                                                                                                                                                                                                                                                                                                                                   1201
                                                                                                                                                                                                                                                                                                                                                                       1261
                                                                                                                                                                                                                                                                                                                                                                                                             1381
                                                                                                                                                                                                                                                                                                                                                                                                                         1381
  à
            g
                          δ
                                     Dp
                                                              q
                                                  õ
                                                                           ò
                                                                                        q
                                                                                                   ò
                                                                                                               qq
                                                                                                                             à
                                                                                                                                        g
                                                                                                                                                     ò
                                                                                                                                                                 qq
                                                                                                                                                                               ò
                                                                                                                                                                                        g
                                                                                                                                                                                                       ò
                                                                                                                                                                                                                  qq
                                                                                                                                                                                                                               οy
                                                                                                                                                                                                                                          οg
                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                               δy
                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                  δλ
                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                          δý
                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                                                                                                                                                                        QQ
                                                                                                                                                                                                                                                                                                                                                                                                             ð
```

PAT 16-MAY-2001

linear

DNA

1440 bp

AR117795

S

RESULT AR117795 LOCUS

```
120
                                                                                                                                                                                                                                                                                                                                                                180
                                                                                                                                                                                                                                                                                                                                                                                                          240
                                                                                                                                                                                                                                                                                                                                                                                                                                                    300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         540
                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  600
                                                                                                                                                                                                                                                      9
                                                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   099
                                                                                                                                                                                                                                                   ACTAAAGTTCTGAAAGACCTGTTGCTTTTCACCAGGAAGTTTTACTGGGCATCTCCTGAG
                                                                                                                                                                                                                                                                                                                                                                                             CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCGTTGCTGCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                      CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGGCCCCCAAAAG
                                                                                                                                                                                                                                                                                                                                                                                   AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGGCCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAGAGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAAATCACAACCACAGCAAGGAGTCCCCACCAGCTGCAGGTCATCCTGGGGCTGTGAAATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGGGCAGGACCACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ruddy, D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AATTCTGCCCTGACACACTGGATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 1440;
                                                                                                                                                                                                                                 0;
                                                                        1 (bases 1 to 1440)
Thomas,W.J., Drayna,D.T., Feder,J.N., Gnirke,A., Tsuchihashi,Z. and Wolff,R.K.
Hereditary hemochromatosis gene products
Patent: US 6140305-A 11 31-0CT-2000;
                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                           9
                                                                                                                                                                                                                                 1;
                                                                                                                                                                                                            В
                                                                                                                                                                  u
                                                                                                                                                                                                         Score 1438.4;
Pred. No. 0;
0; Mismatches
  6140305
                                                                                                                                                                  331
                                                                                                                                 Location/Qualifiers
                                                                                                                                                    /organism="unknown"
354 c 408 g
                                                                                                                                                                 ь
  ns
Sequence 11 from patent
                      GI:14098701
                                                                                                                                                                                                          99.98;
99.98;
                                                                                                                                                                                                        Query Match 99.9
Best Local Similarity 99.9
Matches 1439; Conservative
                                                    Unknown.
Unclassified
           AR117795
AR117795.1
                                                                                                                                                                ರ
                                                                                                                                                                347
                                           Unknown.
                                                                                                                                           source
                                                                                                                                                             BASE COUNT
ORIGIN
                                                    ORGANISM
                                                                                                         TITLE
JOURNAL
           ACCESSION
VERSION
                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                          REFERENCE
                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    541
                              KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               721
                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
```

```
601
                                                                                                                                                                                                                                                                                                                   661
                                                                                                                                                                                                                                                                                                                                                                                      841
                                                                                                                                                                                                                                                                                                                                                                                                   841
                                                                                                                                                                                                                                                                                                                                                                                                                901
                                                                                                                                                                                                                                                                                                                                                                                                                             901
                                                                                                                                                                                                                                                                                                                                                                                                                                           961
                                                                                                                                                                               361
                                                                                                                                                                                                         421
                                                                                                                                                                                                                                    481
                                                                                                                                                                                                                                                 541
                                                                                                                                                                                                                                                                           601
                                                                                                                                                                                                                                                                                                      199
                                                                                                                                                                                                                                                                                                                                721
                                                                                                                                                                                                                                                                                                                                              721
                                                                                                                                                                                                                                                                                                                                                           781
                                                                                                                                                                                                                                                                                                                                                                        781
                                                                                                                                                                                                                                                                                                                                                                                                                                                       961
                                                                                                                                                                                                                                                              541
                                                                                                181
                                                                                                                                                                 361
                                                                                                                                                                                            421
                                                                                                                                                                                                                       481
                                                         121
                                                                      121
                                                                                   181
                                                                                                             241
                                                                                                                          241
                                                                                                                                       301
                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                           Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                        q
                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                             Db
                                                                                                                                                                                                                                                                                                                                                                       qq
                                                                                                                                                                                                                                                                                                                                                                                      òγ
                                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                    g
                                                                                                                                                                 δy
                                                                                                                                                                             g
                                                                                                                                                                                            Qγ
                                                                                                                                                                                                        qq
                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                          QY
                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                           οy
                                                                     g
                                                                                              qq
                                                                                                             δλ
                                                                                                                         qq
                                                                                                                                      ŏ
               g
                                δ
                                            q
                                                         ò
                                                                                   οy
                                                                                                                                                                                                                                                                                                                                 08-AUG-2001
                                                                                                                                                                                                                                                       1380
                                                                                                        1020
                                                                                                                    1080
                                                                                                                                  1080
                                                                                                                                               1140
                                                                                                                                                            1140
                                                                                                                                                                         1200
                                                                                                                                                                                1320
                                                                                                                                                                                                                                     TGCCTGACGAACTCCTTGATTTTAGCCTTCTCTGTTCATTTCCTCAAAAAGATTTCCCCA 1440
                                                                                                                                                                                                                                                                                                1440
                                                                                          1020
                                                                                                                                                                                                                                                                                                                                                                                                          hereditary
                         840
                                                    900
                                                                960
                                                                                                                                                                                                                                                                                          TTGGAGTCATCAGTGGAATTGCTGTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCA
                                                                                                                                                                                                                               GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG
                                                                                                                                                                                                                                                         AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAAACATAGAAAT
                                                                                                                                                                                                                                                                GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTGCCAGGTGGAGCACC
                                                                                                                             CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA
TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACT
            GCCCTGCACAGCTGCAGCTTGCTGGAGCTGGGGAGAGGTGTTTTGGACCAACAAGTGC
                   CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
                                                                 CCTTGAACTACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCAATGG
                                                                                                                                                                                                                                                                                                                                                                                             Ruddy, D.
                                                                                                                                                                                                                                                                                                                                                                                                           ๙
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length
                                                                                                                                                                                                                                                                                                                                                                                                          of
                                                                                                                                                                                                                                                                                                                                  linear
                                                                                                                                                                                                                                                                                                                                                                                              Gnirke, A.,
                                                                                                                                                                                                                                                                                                                                                                                                           absence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB
                                                                                                                                                                                                                                                                                                                                                                                                            or
                                                                                                                                                                                                                                                                                                                                  DNA
                                                                                                                                                                                                                                                                                                                                                                                       1 (bases 1 to 1440)
Thomas,W.J., Drayna,D.T., Feder,J.N.,
Tsuchihashi,Z. and Wolff,R.K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 1438.4;
Pred. No. 0;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ىد
                                                                                                                                                                                                                                                                                                                                                                                                          Method for determining the presence hemochromatcosis gene mutation Patent: US 6228594-A 10 08-MAY-2001; Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                  40 bp D
6228594.
                                                                                                                                                                                                                                                                                                                                                                                                                                                    331
                                                                                                                                                                                                                                                                                                                                  1440
                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism="unknown"
355 c 406 g
                                                                                                                                                                                                                                                                                                                                       patent US
                                                                                                                                                                                                                                                                                                                                                      GI:15114055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                       .1440
                                                                                                                                                                                                                                                                                                                                       Sequence 10 from AR149464
                                                                                                                                                                                                                                                                                                                                                                                Unclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best-Local Similarity
Matches 1439; Conserv
                                                                                                                                                                                                                                                                                                                                                      AR149464.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                  AR149464
                                                                                                                                                                                                                                                                                                                                                                                                                                                    348
                                                                                                                                                                                                                                                                                                                                                                    Unknown
                                                                                                                                                                                                                                                                                                                                                                           Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                   SOURCE
                                                                                                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNT
                                                                                                                                                             1081
                                                                                                                                                                                                                                                                       1321
                                                                                                                                                                                                                                                                                                                                                ACCESSION
VERSION
                                                                               901
                                                                                                         961
                                                                                                                      1021
                                                                                                                                   1021
                                                                                                                                                1081
                                                                                                                                                                           1141
                                                                                                                                                                                        1141
                                                                                                                                                                                                     1201
                                                                                                                                                                                                                  1201
                                                                                                                                                                                                                               1261
                                                                                                                                                                                                                                             1261
                                                                                                                                                                                                                                                          1321
                                                                                                                                                                                                                                                                                     1381
                                                                                                                                                                                                                                                                                                 1381
                                                                  901
                                                                                            961
                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                           781
                                        841
                                                     841
                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
 721
                                                                                                                                                                                                                                                                                                                     RESULT
AR149464
LOCUS
              81
                                                                                                                                                                                                                                                                                                                                                             KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                    BASE CO
                                                                                                                                                                                                               g
                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                         O.Y
Db
                                                                                                                                                                                                 ò
                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                         ò
                                                                                           Q
D
                                                                                                                 oy
oy
ob
 요
                         g
                                        ò
                                                    g
                                                                οŻ
                                                                            ద
              å
```

ö

Gaps

ö

Indels

1;

; 0

Conservative

```
1020
                                                                                                                                                                                                                                                     420
                                                                                                                                                                                                                                                                                                                                                                                                                                   720
                                                                                                                                                                                                                                                                                                                                                                                                                                                      720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  960
                                                                                                                                                                                                                                                                          480
                                                                                                                                                                                                                                                                                                                 540
                                                                                                                                                                                                                                                                                                                                   540
                                                                                                                                                                                                                                                                                                                                                       900
                                                                                                                                                                                                                                                                                                                                                                          900
                                                                                                                                                                                                                                                                                                                                                                                              99
                                                                                                                                                                                                                                                                                                                                                                                                                999
                                                                                                                 240
                                                                                                                                    240
                                                                                                                                                      300
                                                                                                                                                                         300
                                                                                                                                                                                             360
                                                                                                                                                                                                                 360
                                                                                                                                                                                                                                  420
                                                                                                                                                                                                                                                                                            480
                                    120
                                                                          180
                                                                                             180
                                                        120
                 9
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAAATCACAACCACAGGAAGGAGTCCCACACCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                                                                                                                                                                                                                                                                                                             AAGAAGACAACAGTACCGAGGCTACTGGAAGTACGGGTATGATGGGGAGGACCACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CICCITIGGIGAAGGIGACACATCAIGIGACCTCTTCAGIGACCACTCTACGGIGICGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCTTGAACTACTACCCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCCAATGGGGATGGGACCTACCAGGGCT
                                                                                                                                                                                             AATTCTGCCCTGACACTGGATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCAAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCCTGCACAGCTGCAGCTTGCTGGAGCTGGGGAGGTGTTTTGGACCAACAAGTGC
                                                                                                                                                                  CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGGTTTCCCCGGCCCCCCAAAAG
                                                                                      CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCGTT
                                                                                                                                                                                                                                    TTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAGAGTCGCC
                                                                                                                                                                                                                                                                            GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC
                                                                                                                                                                                                                                                                                                                  TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                      ACTAAAGTTCTGAAAGACCTGTTGCTTTTCACCAGGAAGTTTTACTGGGCATCTCCTGAG
                                                                                                                  AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCCAGGC
```

	QY         421 GTGTGGAGCCCCGAACTCCATGGGTTT	OY 541 AAAATCACAACACACAGGAAGTCCC 		Db 781 GCCTGCACAGCTGCAGCAGTTGCTGG Qy 841 CTCCTTTGGTGAAGGTGACACATCATG	Qy         961 ATGCCAAGGAGTTCGAACCTAAAGACG	QY         1081 CAGGCCTGGATCAGCCCCTCATTGTGA	Oy 1201 TAATATTAAGGAAGAGGAGGTTCAA  Db 1201 TAATATTAAGGAAGAGCAGGGTTCAA  Oy 1261 GTGAGTGACACGCAGCCTGCAGACTCA  Oy 1261 GTGAGTGACACGCAGCCTGCAGACTCA  Oy 1321 AGGAGTGCATTATGAGTCTTCATG  Db 1321 AGGAGTGCATTATGAGTCTTCATG  Oy 1381 TGCCTGACGACTCTTATGAGTTTATGCC  Oy 1381 TGCCTGACGACTCTTATGAGTTTATGCC
QY         1081 CAGGCCTGGATCAGCCCTCATTGTGATCTGGGAGCCCTCACGGTCTGGCACCCTAGTCA         1140	QY         1201 TAATATTAAGGAAGGGGGGGTCAAGGGGGCCTACGTCTAGCTGAAC 1260	ATGAGCTCTTCATGTTTCAGGAGGAGTTGAACCTAAACATAGAAAT 138	AR149465 AR149465 LOCUS LOCUS DEFINITION Sequence 11 from patent US 6228594. VERSION AR149465.1 GI:15114056 KEYWORDS OGNECE Unknown.	Unknown Unclassi 1 (bass Thomas,V Tsuchiha Method 1 hemochrc Patent:	/organism="unknown"  347 a 354 c 408 g 331 t  tch  1347 a 99.9%; Score 1438.4; DB 6; Length 1440;  1439. Concervation by Pred, No. 0;	CACCTAGTGT CACCTAGTGT CAGCTAGTGT CAGACCTGTT CAGACCTT CAGACCTGTT CAGACCTT CAGACTT CAGACCTT CAGACTT CAGACCTT CAGACCTT CAGACTT	121 CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCGCCCCCCAAAAG 121 CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGCTTTCCCGCCCCCCCAAAAG 121 CCTAGGCAATAACGGGGACGTGAGGCTGCTGCCGCATTCCCCGCCCCCCCAAAAG 181 AAGCGGAGATTAAACGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCCGGGGCTTTTTAAACGGGACGTGCGGCCCAGAGCTGGGGAAATGGGCCCGCGAGCCGGGGCCTGCTGCTGCTGGCCCCGGGCCCCGGGCCCCGGGCCCCGGGCCCCGGGCCCC

```
1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                  1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1140
                                                                                                                                                                                                                                                                                                                                                                                                              1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTTGTCGTCATCTTGTTCATTGGAATTTGTTCA 1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                            1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG 1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTTCTCTGTTCATTTCCTCAAAAGATTTCCCCA 1440
420
                                               420
                                                                                                                                                             900
                                                                                                                                                                                                                                                         780
                                                                                                                                                                                                                                                                            780
                                                                                                                                                                                                                                                                                                                  840
                                                                                                                                                                                                                                                                                                                                    900
                                                                                                                                                                                                                                                                                                                                                      900
                                                                                                                                                                                                                                                                                                                                                                         960
                                                                 480
                                                                                    480
                                                                                                       540
                                                                                                                          540
                                                                                                                                                                                 9
                                                                                                                                                                                                   099
                                                                                                                                                                                                                     720
                                                                                                                                                                                                                                       720
                                                                                                                                                                                                                                                                                                840
                                                                                                                                                                                                                                                                                                                                                                                           960
                                                                                                                                             600
                            CCAGCTGTTCGTGTTCTATGATCATGAGAGTCGCC
                                                                           CCACACCTGCAGGTCATCTGGGCTGTGAAATGC
                                                                                                                                                                                           SAGAGCAGCAGAACCCAGGCCTGGCCCACCAAGC
                                                                                                                                                                                                                                                                    GGAGCTGGGGAGAGGTGTTTTGGACCAACAAGTGC
                                                                                                                                                                                                                                                                                                                                              CGTATTGCCCAATGGGATGGGACCTACCAGGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC
                                                                                                       CACATGITCACTGITGACTICTGGACTATTATGG
                                                                                                                                                                                 TEGAAGTACGGGTATGATGGGCAGGACCACCTTG
                                                                                                                                                                                                                                        SAGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGC
                                                                                                                                                                                                                                                          SGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACT
                                                                                                                                                                                                                                                                                                SGAGCTGGGGAGAGGTGTTTTGGACCAACAAGTGC
                                                                                                                                                                                                                                                                                                                                     GTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
                                                                                                                                                                                                                                                                                                                                                                          ACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG
                                                                                                                                                                                                                                                                                                                                                                                   SATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGAGGAGCCATGGGGCACTACGTCTTAGCTGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACTGTGGGAAGGACAAAACTAGAGACTCAAAG
                                                                                                                                             CACACCCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGAAGAGCAGAGATATACGTGCCAGGTGGAGCACC
```

```
AATTCTGCCCTGACACTGGATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 (bases 1 to 1440)
Thomas,W.J., Drayna,D.T., Feder,J.N., of Tsuchihashi,Z. and Wolff,R.K.
Tsuchihashi,Z. and Wolff,R.K.
Method for determining the presence or hemochromatosis gene mutation
Patent: US 6228594-A 12 08-MAY-2001;
Location/Qualifiers
:e
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Feder, J.N.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   u
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      40 bp L
6228594.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1440
US 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         organism="unknown"
354 c 407 q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 12 from patent
ARI49466
ARI49466.1 GI:15114057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Unclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AR149466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                               1081
                                                                                                                                                                                                                                                                                                                                          1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                       1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                     1321
                                                                                                                                                                                                                                              1021
                                                                                                                                                                                                                                                                                                                                                                                                                   1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1381
                                                                                         781
                                                                                                                                                                                       961
                                                                                                                                                                                                                           1021
                                                                                                                                                                                                                                                                                  1081
                                                                                                                                                                                                                                                                                                                                                                             1261
199
                 661
                                   721
                                                     721
                                                                       781
                                                                                                            841
                                                                                                                                                 901
                                                                                                                                                                    901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
AR149466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LOCUS
                                                                                                                                                                                                       qq
                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                qq
                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
             g
                                   ò
                                                  q
                                                                                         g
                                                                                                                             qq
                                                                                                                                                 Qγ
                                                                                                                                                                   g
                                                                                                                                                                                      δy
                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                               ŏλ
                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          d
                                                                       QΥ
                                                                                                             δ
                                                                                                                                                                                                                                                       ö
                                             16-MAY-2001
1381 TGCCTGACGAACTCCTTGATTTTAGCCTTCTCTGTTTCATTTCCTCAAAAAGATTTCCCCA 1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       099
                                                                                                                                                                                                                                                                                                             240
                                                                                                                                                                                                                                                                                                                                                                                                         240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               540
                                                                                                                                                                                                                                                                                                                                                  180
                                                                                                                                                                                                                                                                                                                                                                     180
                                                                                                                                                                                                                                                                                                                                                                                                                            300
                                                                                                                                                                                                                                                                                                                                                                                                                                              300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          099
                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                                                                          60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCCAAAAG
                                                                                                                                                                                                                                                                                                                                                                                                  GTGTGGAGCCCGGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGCGCTGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCCCAAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                             CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCTGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                      CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAAATCACAACCACAAGGAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGTGGGCAGGACCATTG
                                                                                                                                                                                                                                                                                                                                                                                        AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAAATCACAACCACAGCAAGGAGTCCCACCACCCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                      Unknown.
Unclassified.
1 (bases 1 to 1440)
Thomas,W.J., Drayna,D.T., Feder,J.N., Gnirke,A., Ruddy,D.,
Tsuchibashi,Z. and Wolff,R.K.
Hereditary hemcohromatcosis gene products
Patent: US 6140305-A 12 31-OCT-2000;
Location/Qualifiers
1. 1440
1. 1440
                                                                                                                                                                                                                                    Length 1440;
                                                                                                                                                                                                                                                       ;
                                                                                                                                                                                                                                                        Indels
                                              linear
                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                     DB
                                              DNA
                                                                                                                                                                                                                                     Score 1436.8;
                                                                                                                                                                                                                                              Pred. No. 0;
0; Mismatches
                                             1440 bp
US 6140305.
                                                      patent
                                                                       AR117796.1 GI:14098702
                                                                                                                                                                                                                                     99.8%;
99.9%;
                                                                                                                                                                                                                                              Best Local Similarity 99.9
Matches 1438; Conservative
                                                      from
                                            AR117796
Sequence 12 f
AR117796
                                                                                          Unknown
                                                                                                     Unknown
                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                source
                                                     DEFINITION
                                                                                                   ORGANISM
                                                                                                                                                                                                 BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                              241
                                                                ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                                                            241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      541
                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           501
                                                                                                                                                            JOURNAL
                          RESULT
AR117796
                                                                                 KEYWORDS
SOURCE
                                                                                                                       REFERENCE
                                                                                                                                 AUTHORS
                                                                                                                                                                      FEATURES
                                                                                                                                                 TITLE
                                                                                                                                                                                                          ORIGIN
                                             LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
용
                                                                                                                                                                                                                                                                                                                                                                                                                                         QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                            임
                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                           οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ογ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   οŽ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ç
```

```
08-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                        1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                 1260
                                                                                                                                                                                                                                                                                                                                                 1140
                                                                                                                                                                                                                                                                                                                                                                          1140
                                                                                                                                                                                                                                                1020
                                                                                                                                                                                                                                                                        1020
                                                                                                                                                                                                                                                                                                1080
                                                                                                                                                                                                                                                                                                                         1080
                                                                                                                                                                                                                                                                                                                                                                                                  1200
                                                                     780
                                                                                               840
                                                                                                                       840
                                                                                                                                              900
                                                                                                                                                                      900
                                                                                                                                                                                               960
                                                                                                                                                                                                                        960
                                              780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          or absence of a hereditary
720
                                                                                                                                                                                                                                                                                                                                                                                                1201 TAATATAAGGAAGGAAGGCAGGTTCAAGAGGAGCCATGGGGCACTAACTTAACTGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1261 GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGAGAAAAACTAGAGACTCAAAG
                                                                                                                                                            CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA
                                                                                                                                                                                                                                                                                                                                                             CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
                                                                                                                                                                                                  CCTTGAACTACCCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG
                                                                                                                                                                                                                                                  ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT
                                                                                                                                                                                                                                                                                                 GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTGCCAGGTGGAGCACC
                                                                                                                                                                                                                                                                                                              TAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGCACTACGTCTTAGCTGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAACATAGAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGCCTGACGAACTCCTTGATTTTAGCCTTCTCTGTTCATTTCCTCAAAAAGATTTCCCCCA
                                                                                               GCCCTGCACAGCTGCAGCTGGAGCTGGGGGAGGTGTTTTGGACCAACTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gnirke, A.,
```

σ

```
/translation="MGPRARPALLLLMLLQTAVLQGRLLPLGYVDDQLFVFYDHESRR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 04-SEP-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Direct Submission
Submitted (06-SEP-1999) Oliva R., Faculty of Medicine and Clinic
Submitted (06-SEP-1999) Oliva R., Faculty of Medicine and Clinic
Hospital, Human Genome Research Group, Casanova 143, 08036, SPAIN
Location/Qualifiers
1. 1280
/organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (Dases 1 to 1280)
Oliva, R. and Sanchez, M. Identification of different alternative splicing forms of the HFE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             of first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HSAZ49335 1280 bp mRNA linear PRI 04-SEP-:
Homo sapiens mRNA for hemochromatosis protein (HFE gene) splice
variant 1.
                                                                                                                                                                                                                                                                                                                     1380
                                                                                                                                                                                                     1260
                                                                                                                                                                                                                                                               1320
                                                                                                                                                                                                                                                                                           1320
                                                                                                                                                                                                                                                                                                                                                                               1440
                                                                                                                                              1200
                                                                                                                                                                                                                                  1260
ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT 1020
                                                                                                                                                             AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAAACATAGAAAT
                                                                                                                                                                                                                                                                                                                                      CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA
                                                                                                      TIGGAGICATCAGGGAATIGCTGTTTTTGTCGTCATCTTGTTCATIGGAATTTTGTTCA
                                                                                                                                                                                                       TAATATTAAGGAAGAAGCAGGGTTCAAGAGGAGCCATGGGGCCACTACGTCTTAGCTGAAC
                                                                                                                                                                                                                                                               GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG
                                            GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGATATACGTACCAGGTGGAGCACC
                              GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTGCCAGGTGGAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          form with deletion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AJ249335
AJ249335.1 GI:15485418
alternative splicing; hemochromatosis protein; HFE gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="alternative splicing
pb of exon 2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               metabolism"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /evidence=experimental
/product="hemochromatosis
/protein_id="CAC67792.1"
/db_xref="GI:15485419"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /db_xxef="taxon:9666"
/chromosome="6"
/map="6p22"
/cell_line="HepG2"
161. .1138
/gene="HFE"
161. .1138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /function="iron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Unpublished
2 (bases 1 to 1280)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="HFE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Oliva, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 10
HSA249335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
TITLE
                                                                                          1081
                                                                                                                                                                                                                                       1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                   1141
                                                                                                                                                                             1141
                                                                                                                                                                                                          1201
                                                                                                                                                                                                                                                                   1261
                                                                                                                                                                                                                                                                                                                          1321
      961
                                 1021
                                                              1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOURCE
                                                                                                                                                                                                                                     QQ
                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                          δy
                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                    δy
                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                           QQ
                                                                                                                 pp
                                                                                                                                                   ŏ
                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                    ò
                                 Ω
                                                                                        ÓΥ
                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCTTGAACTACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG 960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AATTCTGCCCTGACACACTGGATTGGAGAGCAGAACCCAGGGCCTGGCCCACCAAGC 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CICCITIGGIGAAGGIGACACAICAIGIGACCICITCAGIGACCACICIACGGIGICGGG 900
                                                                                                                                                                                                                        540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             780
                                                                                                                                                                                                                                                                                                            240
                                                                                                                                                                                                                                                                                                                                         300
                                                                                                                                                                                                                                                                                                                                                                      300
                                                                                                                                                                                                                                                                                                                                                                                                  360
                                                                                                                                                                                                                                                                                                                                                                                                                             360
                                                                                                                                                                                                                                                                                                                                                                                                                                                          420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          721 TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACT 780
                                                                                                                                                                  61 ACTAAAGTICIGAAAGACCIGIIGCITITCACCAGGAAGIITITACIGGGCAICICCIGAG 120
                                                                                                                                                                                   Gaps
                                                                                                                                   9
                                                                                                        ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCCTGCACAGCTGCAGCTGCTGCAGCTGGGGGAGGTGTTTTGGACCAACAAGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGGCAGGACCACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCCTGCACAGCTGCAGTTGCTGGAGCTGGGGAGGGTGTTTTGGACCAACAAGTGC
                                                                                                                          181 AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCAGGC
                                                                                                                                                                                                                                                                                                                                         CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCCTTGCTGCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTGTGGAGCCCCGAACTCCATGGTTTCCAGTAGAATTTCAAGCCAGATGTGCCTGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAAATCACAACCACAGCAAGGAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCCAGGC
                                                                                                                                                                                                                                                                                                                                                        301 CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                    TIGAAGCITIGGGCTACGIGGAIGACCAGCIGIICGIGIICIAIGAICAIGAGAGICGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGCCTGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                            .;
0
                                                  Length
                                                                              Indels
                                                 9
                                                                              ;
;
                                                  DB
                                                 Score 1436.8;
Pred. No. 0;
                                                                              Mismatches
                                                                              0;
                                                  99.88;
99.98;
                                                                 Best Local Similarity 99.9
Matches 1438; Conservative
                                                                Similarity
                                                    Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         961
                                                                                                                                                                                                                                                                                                                                                                                                                                                             361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             481
                                                                                                                                                                                                                                                                                                                                            241
                                                                                                                                                                                                                                                                                   181
                                                    Query
          ORIGIN
```

QQ

οy

g οy q οy

g QΥ g οχ

ΩD

οy qq δy g οy

g ŏ g ò g δy g ŏ g QΥ qq ŏ g οy qq ά

```
VEPRTPWVSSRISSQWMLQLSQSLKGWDHMETVDFWTIMENHNHSKESHTLQVILGCE
MQEDNSTEGYWKYGYDGQDHLEFCPDTLDWRAAEPRAWPTKLEWERHKIRARONRAYL
ENCPAAQLOLLELGRGVLEOQOVPELVKVTHHYTSSYTTLRCRALNYYPQNITWKWLK
DKQPWDAKEFEPROVLPNGGTYQGWITLAVPPGEEQRYTCQVEHPGLDQPLIVIWEP
SPSGTLVIGVISGINFVVILETGILEILLKRQGSRGAMGHYVLAERE"

314 c 371 9 284 E
                                                                                                            1;
                                                                                                                                                                          241
                                                                                                                                                                                                               CTAAAGTTCTGAAAGACCTGTTGCTTTTCACCAGGAAGTTTTACTGGGCATCTCCTGAGC 121
                                                                                                                                                                CTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGGCCCCCCAAAAGA 181
                                                                                                                                                                                                                                                               236
                                                                                                                                                                                                                                             301
                                                                                                                                                                                                                                                                                  361
                                                                                                                                                                                                                                                                                                                      421
                                                                                                                                                                                                                                                                                                                                       291
                                                                                                                                                                                                                                                                                                                                                          481
                                                                                                                                                                                                                                                                                                                                                                             351
                                                                                                                                                                                                                                                                                                                                                                                               541
                                                                                                                                                                                                                                                                                                                                                                                                                 411
                                                                                                                                                                                                                                                                                                                                                                                                                                   601
                                                                                                                                                                                                                                                                                                                                                                                                                                                     471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       841
                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            771
                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 961
                                                                                                                                    182 AGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGGAGCCAGGCC
                                                                                                                                                                                                                                         GGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCGTTC
                                                                                                                                                                                                                                                    ACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGTT
                                                                                                                                                                                                                                                                                                                  TGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAGAGTCGCCG
                                                                                                                                                                                                                                                                                                                             AAATCACAACCACAGCAAGGAGTCCCACACCCTGCAGGTCATCCTGGGGTGTGAAATGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                          TGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGCT
                                                                                                                                                                                                                                                                                                                                                                                            GAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCCTGCACAGCTGCAGCAGTTGCTGGAGCTGGAGGAGGTGTTTTGGACCAACAAGTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            842 TCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGGCAGGACCACCTTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTCTGCCCTGACACACTGGATTGGAGGAGCAGCAGAACCCAGGGCCTGGCCCAAAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGAGTGGGAAAGGCACAAGATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTTGAACTACTCCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGGA
                                                                                                            :69
                                                                                        Length 1280;
                                                                                                           Indels
                                                                                         6
                                                                                                          ö
                                                                                         DB
                                                                                       Score 1201; Di
Pred. No. 0;
0; Mismatches
                                                                                                          ;
0
                                                                                      83.4%;
94.9%;
                                                                                                          Conservative
                                                                                               Similarity
                                                  ď
                                                 311
                                                                                      Query Match
Best Local Simi
Matches 1280;
                                                                                                                           62
                                                                                                                                                                122
                                                                                                                                                                                  61
                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                          242
                                                                                                                                                                                                                                                                              302
                                                                                                                                                                                                                                                                                                237
                                                                                                                                                                                                                                                                                                                   362
                                                                                                                                                                                                                                                                                                                                     237
                                                                                                                                                                                                                                                                                                                                                       422
                                                                                                                                                                                                                                                                                                                                                                         292
                                                                                                                                                                                                                                                                                                                                                                                            482
                                                                                                                                                                                                                                                                                                                                                                                                                                542
                                                                                                                                                                                                                                                                                                                                                                                                                                                   412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               772
                                                BASE CO
                                                                                                                                            요
                                                                                                                                                               ò
                                                                                                                                                                                a
                                                                                                                                                                                               οy
                                                                                                                                                                                                                    qq
                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                             ογ
                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                     Q
Dp
                                                                                                                                                                                                                                                                                                                                                                                                                          O.
Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
```

```
bp mRNA linear PRI 07-MAY-2001
termination variant terE6 (HFE) mRNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /protein_id="AaG29572.1"
| Dayxref="G1:11094315"
| /translation="MEPRAPELLIMILQMAVLQGRILRSHSLHYLEMGASEQDIGL
SLFEALGYVDDQLFVFYDHESRRVEPRTPWVSSRISSOMMLQLSQSLKGWDHMFYVDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 1200)
Thenle,A., Orhant,M., Gicquel,I., Fergelot,P., Le Gall,J.Y.,
David,V. and Mosser,J.
The HFE gene undergoes alternate splicing processes
                                                                                                                 1141
                                                                                                                                              1011
                                                                                                                                                                          1201
                                                                                                                                                                                                       1071
                                                                                                                                                                                                                                  1261
                                                                                                                                                                                                                                                              1131
                                                          1081
                                                                                                                                                                                                                                                                                                       GGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAACATAGAAATT 1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           å
                               891
                                                                                      951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product="hemochromatosis termination variant terE6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'n
 TGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCTG
              TGGAGTCATCAGTGGAATTGCTGTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCAT
                                                                                                                                                                                                                                              GATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTGCCAGGTGGAGCACCC
                                                                                                                 AGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCAT
                                                                                                                               1012 TGGAGTCATCAGTGGAATTGCTGTTTTTGTCGTCATCTTCATTGGAATTTTGTTCAT
                                                                                                                                                                                                                               AATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGCCACTACGTCTTAGCTGAACG
                                                                                                                                                                                                                                                                                        TGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGAAAAACTAGAGACTCAAAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Faculte de Medecine,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Thenie, A., Orbant, M. and Mosser, J.
Direct Submission
Submitted (17-DEC-1998) UPR 41 CNRS, Fa
Pr. Bernard, Rennes 35043, France
1. .1200
Augustians and Homo sapiens (Ab zref="texon:9606" (Ab zref="texon:9606" (Ab zref="texon:9606")
                                                                                                                                                                                                                                                                                                                                                                                                                  1252 GCCTGACGAACTCCTTGATTTTAGCCTTC 1280
                                                                                                                                                                                                                                                                                                                                                                                                     GCCTGACGAACTCCTTGATTTTAGCCTTC 1410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens hemochromatosis complete cds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AF115265.1 GI:11094314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="HFE"
12. .1058
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /map="6p22"
1. .1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="HFE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20448010
11001625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LOCUS
                                                       1022
                                                                                   892
                                                                                                                1082
                                                                                                                                                                                                                                                          1072
962
                                                                                                                                                                       1142
                                                                                                                                                                                                                               1202
                                                                                                                                                                                                                                                                                        1262
                                                                                                                                                                                                                                                                                                                 1132
                                                                                                                                                                                                                                                                                                                                              1322
                                                                                                                                                                                                                                                                                                                                                                                                     1382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 1
AF115265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
                   Q
                                                       δy
                                                                                   g
                                                                                                                                                                                                 qq
                                                                                                                                                                                                                                                        QQ
                                                                                                                ŏ
                                                                                                                                        g
                                                                                                                                                                       ò
                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                 q
                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                      à
```

```
GGGAGCCCTCACCGTCTGGCACCCTAGTCATTGGAGTCATCAGTGGAATTGCTGTTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCCAGGCCGGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ь
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 69.0%;
Best Local Similarity 96.1%;
Matches 1045; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="HFE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               259
                                                                                                                                                                                                                                                                                                                          Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ಥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               243
                                                                                                                                                                                                                                                                                                              human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
ORIGIN
                                                                                                                                                                                                                           12
                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   186
                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
JOURNAL
                                           1171
                                                                196
                                                                                                                             1291
                                                                                                                                                                      1351
  1111
                                                                                     1231
                                                                                                                                                                                           1141
                      901
                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                         VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  dene
                                                                                                                                                                                                                           RESULT 1
AF079407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                       g
                                                                                                                                                g
                                                                                                                                                                                          g
                   g
                                                               g
                                                                                                                              Qγ
                                                                                                                                                                      ò
                                          Ω
                                                                                   ŏ
WTIMENHNHSKESHTLQVILGCEMQEDNSTEGYWKYGYDGQDHLEFCPDTLDWRAAEP
RAWPTKLEMERHKITARQNRAYLERDCPAGLQGLELGRGYLDQQVPPLVKYTHHVTS
SVTTLRCRALNYYPQNITMKWLKDKQPMDAKEFEPKDVLPNGDGTYQGWITLAVPPGE
EQRYTCQVEHPGLDQPLIVIWEPSFSGTLVIGVISGIAVFVVILFIGILFIILRKRQG
SRGAMGHYVLAERE"
                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGCAGAGATATACGTGCCAGGTGGAGCACCCAGGCCTGGATCAGCCCCTCATTGTGATCT 1110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             270
                                                                                                                                                                                            180
                                                                                                                                                                                                                                                                    450
                                                                                                                                                                                                                                                                               510
                                                                                                                                                                                                                                                                                                                         IGTTCACTGTTGACTTCTGGACTATTATGGAAAATCACAACCACAGGAGGTCCCACA 570
                                                                                                                                                                                                                                                                                                                                                                              360
                                                                                                                                                                                                                                                                                                                                                                                                   630
                                                                                                                                                                                                                                                                                                                                                                                                             690
                                                                                                                                                                                                                                                                                                                                                                                                                                                      CAGCAGAACCCAGGGCCTGGCCCACCAAGCTGGAGTGGGAAAGGCACAAGATTCGGGCCA 750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGGGGAGAGGTGTTTTGGACCAACAAGTGCCTCCTTTGGTGAAGGTGACACATCATGTGA 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCTCTTCAGTGACCACTCTACGGTGTCGGGCCTTGAACTACTACCCCCCAGAACATCACCA 930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGAAGTGGCTGAAGGATAAGCAGCCAATGGATGCCAAGGAGTTCGAACCTAAAGACGTAT 990
                                                                                                                                                                                CCGCGGTCCTGCAGGGGCGCTTGCTGCTTCACACTCTCTGCACTACCTCTTCATGGGTG 330
                                                                                                                                                                                                                          CCTCAGAGCAGGACCTTGGTCTTTCCTTGTTTGAAGCTTTGGGCTACGTGGATGACCAGC 390
                                                                                                                    Gaps
                                                                                                                                                   1 GAGCTGGGGGAAATGGGCCCGCGGGGCCAGCCGGCGCTTCTCCCCCTGATGCTTTTGCAGA 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGCCCAATGGGGATGGGACCTACCAGGGCTGGATAACCTTGGCTGTACCCCTGGGGAAG
                                                                                                                                                                                                                                     CCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAGGGCTACTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                             AGTACGGGTATGATGGGCAGGACCACCTTGAATTCTGCCCTGACACTGGATTGGAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CAGCAGAACCCAGGCCTGGCCCACCAAGCTGGAAAGGAAAAGGAAAAGGAAAAGGCACAAAATTCGGGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGGGGAGAGGTGTTTTGGACCAACAAGTGCCTCCTTTGGTGAAGGTGACACATCATGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAGCTGGGGAAATGGGCCCGCGCGAGCCGGCGCGCTTCTCCTCCTGATGCTTTTGCAGA
                                                                                                                                                                                                                                                                    TGTTCGTGTTCTATGATCATGAGAGTCGCCGTGTGGAGCCCCCGAACTCCATGGGTTTCCA
                                                                                                                                                                                                                                                                                                               GTAGAATTTCAAGCCAGATGTGGCTGCAGCTGAGTCAGAGTCTGAAAGGGTGGGATCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGCAGAACAGGGCCTACCTGGAGAGGGACTGCCCTGCACAGCTGCAGCAGTTGCTGGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ;
0
                                                                                              Length 1200;
                                                                                                                    Indels
                                                                                                                    ö
                                                                                               6
                                                                                               BB
                                                                                              82.6%; Score 1189; Clarity 100.0%; Pred. No. 0; Conservative 0; Mismatches
                                                    346 g
                                                      290 c
                                                                                                        Best Local Similarity
Matches 1189; Conser
                                                       æ
                                                                                                Match
                                                    BASE COUNT
                                                                                                                                                                                271
                                                                                                                                                                                                    61
                                                                                                                                                                                                                          331
                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                    241
                                                                                                                                                                                                                                                                                                                                                       511
                                                                                                                                                                                                                                                                                                                                                                             301
                                                                                                                                                                                                                                                                                                                                                                                                  571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       841
                                                                                                                                        211
                                                                                                                                                                                                                                                                    391
                                                                                                                                                                                                                                                                                                              451
                                                                                                                                                                                                                                                                                                                                                                                                                                            631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           811
                                                                                                Query
                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                       QΩ
                                                                                                                                                                                                                                                                                                                                                                                                                  qq
                                                                                                                                                                                                                                                                                                                                                                                                                                          oy
da
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                   g
                                                                                                                                                                                                                         οχ
                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                              δŽ
                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                   07
                                                                                                                                                                                                                                                                                                                                                                                                  ōλ
                                                                                                                                                         g
                                                                                                                                                                                ò
                                                                                                                                                                                                                                                            ò
```

```
/traislation="MGPRARPALLLLMLLQTAVLQGRLLRSHSLHYLFWGASEQDLGL
SLFRALGYVDDQLFYFYDHESRRVEPRTPWYSSRISSQMWLQLSGSLKGWDHWFTVDF
WITMENHWRESHTLQYTLGEMQEDNSTEGYWKYGYDGQDHLEFCPDTLDWRAAEP
WARPTKLEWRENKIRARQNRAYLERDCPAQLQGLLEGGRGVLDQQYTTLRCRALNYYP
ONITWKWLKDKQPMDAKEFEPKDVLPNGDGTYQGWITLAVPPGEEQRYTCQVEHPGLD
                                                                                                                                                                                                                                                                                                                                                                                                              PRI 18-MAR-1999
(HFE) mRNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Tennis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QPLIVIWEPSPSGTLVIGVISGIAVFVVILFIGILFIILRKRQGSRGAMGHYVLAERE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Cambridge,
GGGAGCCCTCACCTCGCCACCCTAGTCATTGGAGTCATCAGTGGAATTGCTGTTTTG
                                                                     1081 TGGGAAGGAGACAAAACTAGAGACTCAAAGAGGGAGTGCATTTATGAGCTCTTCATGTTT
                                                     TCGTCATCTTGTTCATTGGAATTTTGTTCATAATATTAAGGAAGAGGCAGGGTTCAAGAG
                                                                                                                             GAGCCATGGGGCACTACGTCTTAGCTGAACGTGACACGCAGCCTGCAGACTCACTG
                                                                                                                                                                                                       TGGGAAGGAGACAAAACTAGAGACTCAAAGAGGGAGTGCATTTATGAGCTCTTCATGTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
/product="hemochromatosis splice variant dell4E4"
/protein_id="AAC62646.1"
/db_xref="G1:3695107"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hfe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    42;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Bu Mammalia; Butheria; Primates; Catarrhini; Hominidae; H 1 (bases 1 to 1045)
Rhodes, D.A. and Trowsdale, J.
Alternate splice variants of the hemochromatosis gene Immunogenetics 49 (4), 357-359 (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 1045;
                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens hemochromatosis splice variant dell4E4 complete cds.
AF079407
                                                                                                                                                                                                                                                                                CAGGAGAGAGTTGAACCTAAACATAGAAATTGCCTGACGAACTCCTTGA 1399
                                                                                                                                                                                                                                                                                                 CAGGAGAGAGATGAACCTAAACATAGAAATTGCCTGACGAACTCCTTGA 1189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  oţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    University
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 993; DB 9; I
Pred. No. 2.7e-280;
0; Mismatches 0;
```

셤

g ò QQ δ

ò

```
/codon_start=1
/product="HFB protein"
/product="HFB protein"
/protein_id="AAG23701.1"
/protein_id="AAG23701.1"
/db_xxef="G01:10945688"
/translation="MGPRARPALFFLILLRTVAAQGRPPRSHSLRYLFMGASERDHGL
PLEBALGYVDDELFVAYINHESRRAESRAQWVLGEAHSQLMLOLSQSLKGWDHMFIVDE
WTIMNHHNHSKESHTLQVILGCEPQEDONSTRGFWKYGYDGODHLEFCPETLDWRAAES
RALTTKLEWEVNKIRAKQNRAYLERDCPEQLQMLLELGRGYLDQOVPPLVKYTHHVAS
RALTTKCQVALNRYPQNITMRMLKDRKPMDVKDAESKDVLPSGDGTYQSWEALAVPPGE
BORYTCQVBHGGLDPLTATWEPSLSNTLVTGVISGTAVCVIIFFIGILFRLIRRRQA
SRGAMGDYVLGECE"
                                                         22-OCT-2000
                                                                                                                                               Eukaryota, Metazona; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Perissodactyla; Rhinocerotidae; Ceratotherium. I (bases 1 to 1320)
West, C.J., Worley, M. and Beutler, E. Rhinoceros HFE Polymorphisms
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCCAAAAGAAGCGGAGATTTAACG 196
                                                                                                                                                                                                                Uppublished
2 (bases 1 to 1320)
2 (bases 1 to 1320)
Direct Submission
Submitted (29-Aug-2000) Molecular and Experimental Medicine,
Scripps Research Institute, 10550 North Torrey Pines Road, La
Jolla, CA 92037, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61 AGCACCCGGGTCCGAGCCGGGGAAATGGGCCCGCGGAGCCCGAGCCCGCGCTCTTCTTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCGGTTCACACTCTCTGCACTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCTCTTCATGGGTGCCTCAGAGAGCAGCTTGGTCTTTCCTTGTTGAGCTTTGGGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181 ceretreargacacereagacagacacacacacaccererrasaacerrasacer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAGAGTCGCCGTGTGGGAGCCCCGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           241 IGIGGATGACGAGCTTTTCGTGGCCTACAATCACGAGAGTCGCCGTGCAGAGTCCCCGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              437 ICCAIGGGITICCAGIAGAATITCAAGCCAGAIGIGGCIGCAGCIGAGICAGAGICIGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGGAAAATCACAACCACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGGACGTGCGGCCAGAGCTGGGGGAAATGGGCCCGGGGGCCAGGCCGGCGCTTCTCCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3;
                                                          MAM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 1320;
                                                          mRNA linear
mRNA, complete cds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity 82.4%; Pred. No. 4.5e-252;
Matches 1065; Conservative 0; Mismatches 225;
                                                                                                                                                                                                                                                                                                                               /organism-"Ceratotherium simum"
/db_xref="taxon:9807"
86. .1132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                279
                                                            1320 bp
simum HFE protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 394 g
                                                                         Ceratotherium simum HFE
AY007541
AY007541.1 GI:10945687
                                                                                                                                           Ceratotherium simum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 363 c
                                                                                                                             white rhinoceros
TGACACG 1045
                                                              AY007541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   284
                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            301
                                                                           DEFINITION
                                                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              317
                                                                                                                                                                                                       TITLE
JOURNAL
REFERENCE
AUTHORS
TITLE
 1039
                                                                                                                                                                               REFERENCE
AUTHORS
                                                                                                   VERSION
KEYWORDS
SOURCE
                                                                                          ACCESSION
                                                                                                                                                                                                                                                                       JOURNAL
                                      RESULT 1
AY007541
                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE CC
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTGGATCAGCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGGCACCCTAGTCATTGGA 1145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1085
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAGGAGTICGAACCIAAAGACGIATIGCCCAAIGGGGAIGGGACCIACCAGGGCIGGAIA 1025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTCATCAGTGGAATTGCTGTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCATAATA 1205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGCACTACGTCTTAGCTGAACGTGAG 1265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTCATCAGTGGAATTGCTGTTTTTGTCGTCATCTTGTTCATTGGAATTTGTTCATAATA 978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          905
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   678
                                                                                                                                                                                                                                                545
                                                                                                                                                                                                                                                                                                                                                  665
                                                                                                                                                                                                                                                                                                                                                                            480
                                                                                                                                                                                                                                                                                                                                                                                                   TGCCCTGACACACTGGATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGCTGGAG 725
                                                                                                                                                                                                                                                                                                                                                                                                                             540
                                                                                                                                                                                                                                                                                                                                                                                                                                                       785
                                       305
                                                                                          365
                                                                                                                   180
                                                                                                                                            425
                                                                                                                                                                     240
                                                                                                                                                                                              485
                                                                                                                                                                                                                       300
                                                                                                                                                                                                                                                                         360
                                                                                                                                                                                                                                                                                                  605
                                                                                                                                                                                                                                                                                                                         420
             9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGGGAAAGGCACAAGATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACTGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      906 AACTACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCCAATGGATGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1026 ACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTGCCAGGTGGAGCACCCCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            799 ACCTIGGCIGIACCCCCIGGGGAAGAGCAGAGATAIACGIGCCAGGIGGAGCACCCAGGC
                                                                                                                                                                                                                                                                                                 TTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGGCCTTG
                                                                                                       41 GAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGTGTGAGT
                                                                                                                                                                                                                                                 CAGAGICTGAAAGGGIGGGAICACAIGITCACTGTIGACITCTGGACTAITAIGGAAAAI
  GAGATTTAAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCCAGGCCGGCG
                                        CTICICCICCIGATGCTTTTGCAGACCGCGGTCCTGCAGGGGGCGCTTGCTGCGTTCACAC
                                                                                           TCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGTTTGAA
                                                                                                                                                                                              GAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGCTGAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGACACG 1272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             =
=
=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   919
                                                                                                                                                                                                                                                  486
                                                                                                                                                                                                                                                                                                                                                      909
                                                                                                                                                                                                                                                                                                                                                                              421
                                                                                                                                                                                                                                                                                                                                                                                                       999
                                                                                                                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                         726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       651
                                           246
                                                                                            306
                                                                                                                                                                                                 426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Op
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                          qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
```

ä

Gaps

9

120 316 180 376 240 436 300 496

360 556

The

S S

g QY Db g ò

ò

ŏ

us-09-497-957-9.rge

Euteleostomi; Dicerorhinus.

```
/product="HFE protein"
/product="HFE protein"
/product="HFE protein"
/protein_id="AAG23703.1"
/brotein_id="MAG23703.1"
/brotein_id="MAG23703.1"
/translation="WarARPAREAE"
/translation="WarARPAREAE"
PLFEALGYVDDELFVAYNHESRRAESRAQWYLGEAHSQLMLQLSQSLKGWDHMFIVDF
WYIMDHHNHSKESHTLQVILGEVQEDNSTRGFWKYGYDGOPHLEFCPETLDWRAAES
RALTTKLEWEVNKIRAKONRAYLERDCPEQLQMLLELGRGVLDQQVPPLVKYTHHVAS
AVTTLRCQALNRYPQNITMWRMLKDRKPVDVKQAESKOVLPSGTGGTVGSWVALAVPPGE
EQRYTCQVEHPGLDQPLTATWEPSLSNTLVTGVISGIAVCVIIFLIGILFRILRKRQA
                                                                           2 (bases 1 to 1320)
West, C.J., Worley, M. and Beutler, E.
Direct Submission
Submitted (29-AUG-2000) Molecular and Experimental Medicine,
Scripps Research Institute, 10550 North Torrey Pines Road, La
Jolla, CA 92037, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCAAAAGAAGCGGAGATTTAACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGCACCCGCGGTCCGAGCCGGGGAAATGGGCCCGCGAGCCCGGCGCCCGCGCTTCTTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCGTTCACACTCTCTGCACTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGTTTGAAGCTTTTGGGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGCTGAGTCAGAGTCTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCAGTGGGTCTTGGGTGAGGCCCACCAGCTGTGGCTGCAGCTGAGTCAGAGCCTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACTGGATTGGAGGCAGCAGAACCCAGGGCCTGGCCCAAGCTGGAGTGGGAAAGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2 AGGUGACTICITGGGTCACTCCTATTTTCCCGCCCCACCGAAGCAGCTGACA-CGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGGCCGGCGCGCTTCTCCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAGAGTCGCCGTGTGGAGCCCCGGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGGAAAATCACAACCACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CAAGGAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGAGGGCTACTGGAAGTACGGGTATGATGGGCAGGACCACCTTGAATTCTGCCCTGACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CAGGGGGTTCTGGAAGTACGGTACGATGGGCAGGACCATCTTGAATTCTGCCTGAGAC
                                                                                                                                                                                                                                                                                                                                                                                                                      Length 1320;
Eukaryota; Metazoa; Chordata; Craniata; Wertebrata;
Mammalia; Eutheria; Perissodactyla; Rhinocerotidae;
1 (bases 1 to 1320)
                                                                                                                                                                                                                                                                                                                                                                                                                      Score 897; DB 4; Length 13
Pred. No. 4.5e-252;
0; Mismatches 225; Indels
                                                                                                                                                                                    sumatrensis"
                            1 (bases 1 to 1320)
West,C.J., Worley,M. and Beutler,E.
Rhinoceros HFE Polymorphisms
                                                                                                                                                                                                                                                                                                                                                                    283
                                                                                                                                                                             /organism="Dicerorhinus
/db_xref="taxon:89632"
86. .1132
                                                                                                                                                                                                                                                                                                                                                                    398 g
                                                                                                                                                                                                                          /codon_start=1
                                                                                                                                                                                                                                                                                                                                                        SRGAMGDYVLAECE
                                                                                                                                                                                                                                                                                                                                                                                                                      62.3%;
ilarity 82.4%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                    358 c
                                                                 Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                       ಠ
                                                                                                                                                                                                                                                                                                                                                                    281
                                                                                                                                                                                                                                                                                                                                                                                                                                    Best_Local Simi
Matches 1065;
                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                    BASE COUNT
ORIGIN
                                        AUTHORS
TITLE
                                                               JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   677
                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         481
                                                                                                                   JOURNAL
                            REFERENCE
                                                                                                                                                                                                              CDS
                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   П
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MAM 22-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1140
                                                                                                                                                                                                                                                                                                                                                                                                         1036
                                                                                                                                                                                                                                                                                                                                                                                                                                                              1096
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1336
                                       919
                                                                 480
                                                                                                                                           736
                                                                                                                                                                     900
                                                                                                                                                                                               964
                                                                                                                                                                                                                        099
                                                                                                                                                                                                                                                 856
                                                                                                                                                                                                                                                                           720
                                                                                                                                                                                                                                                                                                    916
                                                                                                                                                                                                                                                                                                                             780
                                                                                                                                                                                                                                                                                                                                                      916
                                                                                                                                                                                                                                                                                                                                                                                                                                    006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      960
                                                                                                                                                                                                                                                                                                                                                                                                                                                        CAGGGGTTTCTGGAAGTACGGGTACGATGGGCAGGACCATCTTGAATTCTGCCCTGAGAC
                                                                                                                                                         CTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAGAGGGAGTGCATTTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1337 AGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAA-ACATAGAAATTGCCTGACGAACTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1200 CATTCTTTGTGTTTCAGGACAGAGTTGAACCTAACAAATGGGAACTGTCCCAGGAGGTCT
                                                                                      CGAGGGCTACTGGAAGTACGGGTATGATGGGCAGGACCACCTTGAATTCTGCCCTGACAC
                                                                                                                                           ACTGGATTGGAGGCAGCAGGACCCAGGGCCTGGCCCACCAAGCTGGAGTGGGAAAGGCA
                                                                                                                                                                                             CAAGATTCGGGCCAGGACAGGGCCTACCTGGAGAGGGACTGCCCTGCACAGCTGCA
                                                                                                                                                                                                                                               GCAGTTGCTGGAGCTGGGGAGGTGTTTTGGACCAACAAGTGCCTCCTTTGGTGAAGGT
                                                                                                                                                                                                                                                                                                  GACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGGGCCTTGAACTACTACCC
                                                                                                                                                                                                                                                                                                                                                     CCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGGATGCCAAGGAGTTCGA
                                                                                                                                                                                                                                                                                                                                                                                                       ACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCTGGATAACCTTGGCTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1097 CCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCATTGGAGTCATCAGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AATTGCTGTTTTTGTCGTCATCTTGTTCATTGGAATTTTTGTTCATAATATTAAGGAAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     bp mRNA linear
protein mRNA, complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTGATTTTAGCCTTCTCTGTTCATTTCCTCAAA 1428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1260 CTGCTCTTAGCCTTCCCTGTTCACTCTCAAAAA 1292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AY007543 1320 1
Dicerorhinus sumatrensis HFE 1
AY007543 GI:10945691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sumatran rhinoceros.
Dicerorhinus sumatrensis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
ACCESSION
                                                                                      617
                                                                                                                481
                                                                                                                                          219
                                                                                                                                                                    541
                                                                                                                                                                                                                      601
                                                                                                                                                                                                                                                                                                                                                                                                       977
                                                                                                                                                                                                                                                                                                                                                                                                                                                           1037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            14
             361
                                     557
                                                             421
                                                                                                                                                                                             737
                                                                                                                                                                                                                                              797
                                                                                                                                                                                                                                                                        661
                                                                                                                                                                                                                                                                                                  857
                                                                                                                                                                                                                                                                                                                                                     917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AY007543
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
             g
                                                           g
                                                                                                               g
                                                                                                                                                              g
                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                         Op
                                                                                                                                                                                                                                                                                                                                                                                                                         Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                     QΫ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6
                                    δ
                                                                                      οy
                                                                                                                                      Qγ
                                                                                                                                                                                            οy
                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                  Qγ
                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
```

3,

Gaps

'n

180

256 120

9

240 436 496

360 556 420

300

919

480 919

	CAAGATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACTGCCCTGCACCAGCTGCA 796	GCACTTGCTGGAGCTGGAGAGGTGTTTTGGACCAACAAGTGCCTCCTTTGGTGAAGGT 856	'GACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGGCCTTGAACTACTACCC 916	CCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGGATGCCAAGGAGTTCGA 976	ACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCTGGATAACCTTGGCTGT 1036	** ACCCCTGGGGAAGAGCAGAGATATACGTGCCAGGTGGAGCAGCCTGGATCAGCC 1096	CCTCATTGTGATCTGGGAGCCCTCACCGTGTGGCACCTAGTCATTGGAGTCATCAGTGG 1156	/ AATTGCTGTTTTTGCGTGATCTTGTTCGATTTTGTTCGTAATATTAAGGAAGAG 1216 	GCAGGGTTCAAGAGGAGCCATGGGGCACTACGTCTTAGCTGAACGTGAGTGA	CTGCAGACTCACTGTGGGAAGGAGAACTAGAGACTCAAAGAGGAGTGCATTTATG 1336	AGCTCTTCATGTTTCAGGAGAGTTGAACCTAA-ACATAGAAATTGCCTGACGACTCC 1395	CGTT	TTGATTTTAGCCTTCTGTTCATTTCCTCAAA 1428 	AY007544  AY007544  I319 bp mRNA linear MAM 22-OCT-2000  NN Rhinoceros unicornis HFE protein mRNA, complete cds.  AY007541. GI:10945693  Greater Indian rhinoceros.  Minoceros unicornis Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalla; Eutheria; Perissodactyla; Rhinocerosus.  I (bases 1 to 1319)  West, C.J., Worley, M. and Beutler, E. Rhinoceros HFE Polymorphisms  Unpublished  2 (bases 1 to 1319)  Nest, C.J., Worley, M. and Beutler, E. Bhinocerosus HFE Polymorphisms  2 (bases 1 to 1319)  Nest, C.J., Worley, M. and Beutler, E. Bhinocerosus HFE Polymorphisms  Submitted (29-AUG-2000) Molecular and Experimental Medicine, The Scripps Research Institute, 10550 North Torrey Pines Road, La Jolla, CA 92037, USA
541	737	797	857	917	977	1037	1097	1157	1217	1277	1337	1200	1396	AYOU7544 LOCUS LOCUS LOCUS ACESION ACESION VERSION VERSION VERSION ACESION TOTALE AUTHORS TITLE JOURNAL AUTHORS TITLE JOURNAL TITLE JOURNAL TITLE JOURNAL TITLE JOURNAL TITLE JOURNAL TITLE JOURNAL
qq	O <sub>Y</sub>	Q Q	Q D	Qy Db	Oy Db	Oy Dp	Oy Dp	Oy Dp	Qy Db	oy P	ΟY	QQ	Oy Dp	A A C C C C C C C C C C C C C C C C C C

```
5
                                                                                                                                                                                                                                                                                     316
                                                                                                                                                                                                                                                                                                      180
                                                                                                                                                                                                                                                                                                                       376
                                                                                                                                                                                                                                                                                                                                         240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        919
                                                                                                                                                                                                                 196
                                                                                                                                                                                                                                                                    120
                                                                                                                                                                                                                                                                                                                                                           436
                                                                                                                                                                                                                                                                                                                                                                            300
                                                                                                                                                                                                                                                                                                                                                                                              496
                                                                                                                                                                                                                                                                                                                                                                                                                                  556
                                                                                                                                                                                                                                                                                                                                                                                                                                                  420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    916
                                                                                                                                                                                                                                                   256
                                                                                                                                                                                                                                                                                                                                                                                                               360
                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCAAAAGAAGCGGAGATTTAACG
                                                                                                                                                                                                                                                                                               CAGGGGGTTCTGGATGTACGGGTACGACGGCAGGACCATCTTGAATTCTGCCCTGAGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGGCCTTGAACTACTACCC
                                                                                                                                                                                                                          2 AGGGTGACTTCTTGGGTCACTCCTATTTCCCCGCCCCAAGCAGCAGCTGACA-CGGGCC
                                                                                                                                                                                                                                                    61 AGCACCCGGGGTCCGGGGGGAAATGGGCCCGCGGAGCCGGAGCCGGCGCTCTTCTTCCT
                                                                                                                                                                                                                                                                                      GATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCGTTCACACTCTCTGCACTA
                                                                                                                                                                                                                                                                                                                         CCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGTTTGAAGCTTTGGGCTA
                                                                                                                                                                                                                                                                                                                                                            CGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAGAGTCGCCGTGTGGAGCCCCGGAAC
                                                                                                                                                                                                                                                                                                                                                                      TCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGCTGAGTCAGAGTCTGAA
                                                                                                                                                                                                                                                                                                                                                                                                        CCAGTGGGTCTTGGGTGAGGCCCACAGCCAGCTGTGGCTGCAGTGAGTCAGAGCCTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGAGGGCTACTGGAAGTACGGGTATGATGGGCAGGACCACCTTGAATTCTGCCCTGACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACTGGATTGGAGGAGCAGAACCCAGGGCCTGGCCCACCAAGCTGGAGTGGGAAAGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CAAGATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACTGCCCTGCACAGCTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCAGTTGCTGGAGCTGGGAGAGGTGTTTTGGACCAACAAGTGCCTCCTTTGGTGAAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ;
;
                                                                                                                                                                            62.3%; Score 896.8; DB 4; Length 1319;
1larity 81.9%; Pred. No. 5.1e-252;
Conservative 0; Mismatches 232; Indels 2;
                  unicornis
1. .1319
/organism="Rhinoceros u./db_xref="taxon:9809"
86. .1139
Location/Qualifiers
                                                                                                                                                                                     Best Local Similarity
Matches 1058; Conserv
                                                                                                                                              ๙
                                                                                                                                            279
                                                                                                                                                                              Query Match
Best Local &
          source
                                                                                                                                           BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        617
                                                                                                                                                                                                                 137
                                                                                                                                                                                                                                                                                                                                                                                              437
                                                                                                                                                                                                                                                   197
                                                                                                                                                                                                                                                                                      257
                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                        317
                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                           377
                                                                                                                                                                                                                                                                                                                                                                              241
                                                                                                                                                                                                                                                                                                                                                                                                                301
                                                                                                                                                                                                                                                                                                                                                                                                                                  497
                                                                                                                                                                                                                                                                                                                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     857
                                   CDS
 FEATURES
                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                          δy
                                                                                                                                                                                                                                                                                                                                                                           Dp
                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                q
                                                                                                                                                                                                                                                                                                                                                                                                                                  δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
```

```
1216
                                                                                                                                                                                       1276
                                                                                                                                                                                                        1140
                                                                                                                                                                1021 GATTGCTGTTTGTGTCATCATCTTCCATTGGAATTTTGTTCAGAATCTTAAGGAAAAG 1080
                                                                                                                                                                                                                       1277 CTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAGAGGGGGGGTGCATTTATG 1336
                                                                                        1096
                                                                                                                                                                                                                                                       1337 AGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAACATAGAAATTGCCTGACGAACTCCT 1396
                                                                                                                                                                                                                                                                         1259
                                                       977 ACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCTGGATAACCTTGGCTGT 1036
                                                                                                        096
                                                                       900
901 GCCCCCGGGGAAGAGCAGAGATATACCTGCCAGGTGGAGCACCAGGCCTGGATCAGCC
                                                                                                                                                       1157 AATTGCTGTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCATAATATTAAGGAAGAG
                                                                                                                                                                                                                                 1037 ACCCCCTGGGGAAGAGCAGATATACGTGCCAGGTGGAGCACCCAGGCCTGGATCAGCC
                                                                                                                                                                                       917 CCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGGATGCCAAGGAGTTCGA
                                                                                                                                                                                                                                                                                      1097
                                                                    Qλ
                                                                                                                                                                                                                                   g y
                                                                                                                                                                                                                                                                   qq
                                                                                                                                                                                                                                                                                      δ
       g
                        ò
                                     OD
                                                  Qγ
```

Search completed: June 19, 2002, 08:23:48 Job time: 6314 sec

•			·	
		·		
	·			
		·		

```
June 19, 2002, 06:38:34; Search time 2546.54 Seconds (without alignments) 7632.166 Million cell updates/sec
                                                                                                                                                                                                   US-09-497-957-9
1440
1 GGGGACACIGGAICACCIAG......TCCICAAAAAGAIIICCCCA 1440
GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                               OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                     IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                         Perfect score:
                                                                                                                                                                                                                                                                                     Scoring table:
                                                                                                                                                                                                                                                 Sednence:
                                                                                                                        Run on:
                                                                                                                                                                                                        Title:
```

13736207 seqs, 6748477542 residues Total number of Searched:

27472414

hits satisfying chosen parameters: Minimum DB seq length: 0 Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

gb\_gss:\* em\_gss\_hum:\* em\_gss\_inv:\* em\_gss\_vrt:\* em\_esthum: \*
em\_esthum: \*
em\_esthu: \*
em\_estpu: \*
em\_estpu: \*
em\_estpu: \*
em\_btc: \*
gb\_esti: \*
gb\_est: \* em\_estba:\* ESI:\* Database :

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

	Description	BG747345 602704818	AKO09581 Mus muscu		BF883952 PM4-FT020			BE994943 III-M-CGOD	AI850020 UI-M-BG0-	BE995172 UI-M-CG0p	AA217236 mu89b05.r	W21141 zb51q06.rl	BE809138 214520 MA	BB851691 BB851691	BI452668 603169877	BB858165 BB858165	BF465475 III-M-CG0n	BC005306 Homo sapi
SUMMARIES	CI CI	BG747345	AK009581	BE272926	BF883952	BI339179	BF080089	BE994943	AI850020	BE995172	AA217236	W21141	BE809138	BB851691	BI452668	BB858165	BF465475	BC005306
	DB	10	11	10	10	10	10	10	δ	10	σ	2	10	σ	10	6	10	11
	Length	819	1723	570	384	550	523	489	457	455	464	268	546	481	831	502	392	1208
ф	Query Match Length DB	51.3	44.0	35.2	24.9	19.7	19.2	18.0	17.5	17.2	16.1	15.7	14.9	14.7	14.2	13.8	13.8	13.0
	Score		633.8	506.8	358	284.2	276.6	259.4	251.4	248.4	231.6	226.4	214.6	211.2	203.8	198.8	198.2	187.4
	Result No.	1	7	m	O 4	Ŋ	9	7	80	S	c 10	11	12	13	14	15	16	17

FEATURES

BF464345 III-M-CG0b	AZ025590 RPCI-23-3	AW902003 OV0-NN102	AZ074871 RPCI-23-4		AL532717 AL532717	H33644 EST109830 R	AZ025784 RPCI-23-3	AO703007 HS 5443 B	AL513728 AL513728	AK005051 Mus muscu	AL545738 AL545738	AL541209 AL541209	AL560013 AL560013	AL539924 AL539924		AL535151 AL535151		AL547313 AL547313	BI832514 603082113	BG680802 602628602	AL540488 AL540488	BM477276 AGENCOURT	AL541347 AL541347	AL542403 AL542403	AL557373 AL557373		BG744157 602722954
10 BF464345	12 AZ025590	9 AW902003	12 AZ074871	10 BG402460	9 AL532717		12 AZ025784		9 AL513728		9 AL545738						10 BM465674	Ø		10 BG680802	Æ	10 BM477276	9 AL541347	-	9 AL557373		10 BG744157
394	444	334	536	802	1016	289	481	531	1031	1298	1121	972	959	942	910	1020	1094	932	936	619	937	1090	930	979	979	538	916
12.1	11.8	11.1	10.9	10.7	10.7	10.5	10.5	10.1	10.1	10.0	6.6	8.6	8.6	9.6	9.7	9.7	9.6	6.9	9.3	9.5	9.2	9.5	9.1	9.1	9.1	9.1	9.1
174	170.4	160	156.8	154	153.6	151.8	151.6	146	145.6	143.6	143.2	141.6	141.4	140.8	139.8	139.4	138	134.2	133.8	133	132.6	132.6	131.6	131.6	131.6	131.4	131.2
18	19	20	21	22	23	24	25	56	27	28	58	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
	ပ	O	O				υ																				

	819 bp mRNA linear EST 15-MAY-2001	en	•		
	BG747345	602704818F1 NIH_MGC_15	mRNA sequence.	BG747345	BG747345.1 GT:14057998 -
RESULT 1 BG747345	rocus	DEFINITION		ACCESSION	VERSION

ALIGNMENTS

human. VERSION KEYWORDS SOURCE ORGANISM AUTHORS TITLE REFERENCE

Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (Dases 1 to 819)

NIH-WGC http://mgc.nci.nih.gov/.

National Institutes of Health, Mammalian Gene Collection (MGC)

Lu Onpublished (1999)

Contact: Robert Strausberg, Ph.D.

Email: Gappas-rémail.nih.gov

Tissue Procurement: ATC

CDNA Library Preparation: Ling Hong/Rubin Laboratory

CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LINL)

DNA Sequencing by: NIH Intramural Sequencing Center

Clone distribution: MGC clone distribution information can be found through the I.M.A.G.E. Consortium/LINL at:

Http://mage.llnl.gov

Plate: LLCM1711 row: d column: 06

High quality sequence stop: 792.

Location/Oualifiers JOURNAL COMMENT

/clone\_lib="NHL MGC\_15"
/tissue\_type="adenocarcinoma cell line"
/lab\_host="bH10B (phage-resistant)"
/note="Organ: colon; Vector: pOTB7; Site\_1: XhoI; Site\_2:
ECORI; cDNA made by oligo-dT priming. Directionally
cloned into ECORI/XhoI sites using the following 5'
adaptor: GGCACGAG(G). Size-selected >500bp for average
insert size 1.8kb. Library constructed by Ling Hong in /organism="Homo sapiens" /db\_xref="taxon:9606" /clone="IMAGE:4857941" source

Local

Matches Best

504

ò

g ò g

요

g ò

BASE COUNT ORIGIN

```
Mammalia; Eutheria; Rodentia;
                                 HTC; CAP trapper.
                                                                                          clone:2310032M04.
                                                                                                         Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                   (sites)
                                                                                                                                                                 (sites)
                                                                                                                                                                                                                                                                         (sites)
                                                                                                                                                                                                                                                    10349636
                                                                                                                                                                                                                                                                                                                                                                                              11042159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              11076861
                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                                                                                                             MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                TITLE
JOURNAL
ACCESSION
                VERSION
KEYWORDS
SOURCE
                                                                                                                                                              REFERENCE
                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                                                                                                     MEDLINE
                                                                                                                                                                                                                                                    PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HTC 19-JAN-2002
                                                                                                                                                                3;
 the laboratory of Gerald M. Rubin (University of California, Berkeley) using ZAP-CDNA synthesis kit (Stratagene) and Superscript II RT (Life Technologies)" 201 c 235 g 181 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCATTGGAGTCATCAGTGGAATTGCT 1163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       984 GACGIATIGCCCAAIGGGGAIGGGACCIACCAGGGCIGGAIAACCIIGGCIGIACCCCCI 1043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         657
                                                                                                                                                                                                                                                                                                                                             563
                                                                                                                                                                                                                                                                                                                                                                               180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GIGATCTIGGGAGCCCICACGICIGGCACCTAGICATIGGAAGICATCCAGIGGAATIGC 777
                                                                                                                                                                                                  384 GACCAGCTGTTCGTGTTCTATGATCATGAGAGTCGCCGTGTGGAGCCCCCGAACTCCATGG 443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 924 ATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGGATGCCAAGGAGTTCGAACCTAAA 983
                                                                                                                                                                                                                                   9
                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 GACCAGCTGTTCGTGTTCTATGATCATGAGAGTCGCCGTGTGGGAGCCCCGAACTCCATGG
                                                                                                                                                                                                                                                                                                                                                                241 TACTGGAAGTACGGGGTATGATGGGCAGGACCACCTTGAATTCTGCCCTGACACTGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 360 CGGGCCAGGAGAACAGGGCCTACCTGGAGAGGGACTGCCCTGCACAGCTGCAGGTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GACGTATTGCCCAATGGGGATGGGACCTACCA-GGCTGGATAACCTTGGCTGTAACCCCC
                                                                                                                                                                                                                                                                         444 GTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGCTGAGTCAGAGTCTGAAAGGGTGG
                                                                                                                                                                                                                                                                                          61 GTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGCTGAGGTCAGAGTCTGAAAGGGTGG
                                                                                                                                                                                                                                                                                                                                             GATCACATGTTCACTGTTGACTTCTGGACTATTATGGAAAATCACAACCACAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                 564 TCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                    181 TCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAGACAACAGTACCGAGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        624 TACTGGAAGTACGGGTATGATGGGCAGGACCACCTTGAATTCTGCCCTGACACTGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGGAGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGCTGGAGTGGGAAAGGCACAAGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACTGCCCTGCACAGCTGCAGAGTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           864 CATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGGCCTTGAACTACTACCCCCAGAAC
                                                                                                                                                                3,
                                                                                                                            Length 819;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    linear
                                                                                                                            Score 738.6; DB 10; Length
Pred. No. 2.2e-194;
0; Mismatches 29; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1164 GITTITGTCGTCATCTTGTTCATTGGAATTTTGTTCATAAT 1204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGTTTTGTCGTCATCTTGTTCCTTGGAATTTTGTTCATAAT 818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1723 bp
                                                                                                                            tch 51.3%;
al Similarity 96.1%;
789; Conservative
                                                        ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AK009581
                                                                                                                                Query Match
```

684 301 744

> 8 ò g ò

셤

g

ò g ò

ŏ

ò

g ò Op õ Mus musculus adult male tongue cDNA, RIKEN full-length enriched library, clone:2310032M04:hemochromatosis, full insert sequence.

RESULT 2 AK009581 LOCUS DEFINITION

1104

ò

g ò 셤

```
Functional annotation of a full-length mouse cDNA collection
NAL Nature 409, 685-690 (2001)

(Cases I to 1723)

Rakawa, T., Baldarelli, R., Bono, H., Brownstein, M., Bult, C.,
Carninci, P., Fukuda, S., Furunco, M., Hanaqaki, T.,
Hara, A., Hayatsu, N., Hill, D., Hiramoto, K., Hiraoka, T., Hori, F.,
Hume, D., Imotani, R., Eshi, Y., Toh, M., Isawa, M., Kasudawa, T.,
Kato, H., Kawai, J., Kojima, Y., Konno, H., Koya, S.,
Kurihara, C., Matsuyama, T., Miyazaki, A., Nishi, K., Nomura, K.,
Numazaki, R., Ohno, M., Okazaki, Y., Okazaki, V., Okazaki, R., Sano, H., Sasaki, D.,
Salto, H., Saito, R., Sakai, C., Sakai, K., Sano, H., Sasaki, D.,
Sogabe, Y., Suzuki, H., Taqami, M., Taqawa, A., Takahashi, F.,
Tanaka, T., Tejina, Y., Toya, T., Yamamura, T., Yamanaka, I.,
Hayashizaki, R., Oshino, M., Muramatsu, M. and
Hayashizaki, Y., Soshino, M., Muramatsu, M. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Carninci, P., Shibata, Y., Hayatsu, N., Sugahara, Y., Shibata, K., Itoh, M., Konno, H., Okazaki, Y., Muramatsu, M. and Hayashizaki, Y. Normalization and subtraction of cap-trapper-selected cDNAs to prepare full-length cDNA libraries for rapid discovery of new genes Genome Res. 10 (10), 1617-1630 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Direct Submission
Submitted (10-JUL-2000) Yoshihide Hayashizaki, The Institute of
Submitted (10-JUL-2000) Yoshihide Hayashizaki, The Institute of
Enyloral and Chemical Research (RIKEN), Laboratory for Genome
Exploration Research Group, RIKEN Gemomic Sciences Center (GSC),
RIKEN Yokohama Institute; 1-7-22 Suehiro-cho, Tsurumi-ku, Yokohama,
Ranaqawa 230-0045, Japan (E-mall:genome-res@gsc.riken.go.jp,
URL:http://genome-gsc.riken.go.jp/, Tel:81-45-503-9222,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDNA library was prepared and sequenced in Mouse Genome Encyclopedia Project of Genome Exploration Research Group in Riken Genomic Sciences Center and Genome Science Laboratory in RIKEN. Division of Experimental Animal Research in Riken contributed to prepare mouse tissues. First strand cDNA was primed with a primer [5' GAGAGAGAGAGCATCCAAGAGCTCTTTTTTTTTTTTTVN 3'], cDNA was prepared by using trehalose thermo-activated reverse transcriptase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Shibata,K., Itoh,M., Aizawa,K., Nagaoka,S., Sasaki,N., Carninci,P., Rono,H., Akiyama,J., Nishi,K., Kitaunai,T., Tashiro,H., Itoh,M., Sumi,N., Ishii,Y., Nakamura,S., Hazama,M., Nishino,T., Harada,A., Yamamoto,R., Matsumoto,H., Sakaguchi,S., Ikegami,T., Kashiwagi,K., Yamamoto,R., Inoue,K., Togawa,Y., Izawa,M., Ohara,E., Watsahika,Y., Yoneda,Y., Ishikawa,T., Ozawa,K., Tanaka,T., Matsuura,S., Kawai,J., Okazaki,Y., Muramatsu,M., Inoue,Y., Kira,A. and Hayashizaki,Y. Sequencing pipeline with 384 multicapillary sequence analysis (RISA) system--384-format Genome Res. 10 (11), 1757-1771 (2000)
                                                                                                                                                                                                      Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Please visit our web site (http://genome.gsc.riken.go.jp/) for further details.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4 (sites)
The RIKEN Genome Exploration Research Group Phase II Team and
Mus musculus (strain:C57BL/6J) adult male tongue cDNA to mRNA, clone_lib:RIKEN full-length enriched mouse cDNA library
                                                                                                                                                                                                                                                                                                                                              Carninci,p. and Hayashizaki,Y.
High-efficiency full-length cDNA cloning
Meth. Enzymol. 303, 19-44 (1999)
9279253
```

 $\epsilon$ 

```
RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         q
                                  Op
                                                                       ōλ
                                                                                                            QQ
                                                                                                                                                       Qγ
                                                                                                                                                                                                   g
                                                                                                                                                                                                                                               Óγ
                                                                                                                                                                                                                                                                                      Dp
                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Пр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /protein_id="BAB26373.1"
/db_xref="G1:12844463"
/db_xref="G1:1284444"
/db_xref="G1:12
/tissue_type="tongue"
/clone_lib="RIKEN full-length enriched mouse cDNA library"
/dev_stage="adult"
99. .1178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ė;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTGGGCCATCTCCTGAGCCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTT 164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CAGATGTGGCTGCAGCTGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGAC 524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCCCGCCCCCCAAAAGAAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61 CCAGATCCTAGTGAAGACCGGTGGACCCAGC ----TGAGGACATGAGCCTATCAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 285 GGCCCTTGCTGCGTTCACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       345 CTIGGTCTTTCCTTGTTTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGCCCGCGAGGCCGGCGGTTCTCCTCTGATGCTTTTGCAGACCGCGGTCCTGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GATCATGAGAGTCGCCGTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 11; Length 1723;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="data source:MGD, source key:MGI:109191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         357;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pred. No. 4.6e-165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          44.0%; Scur 70.2%; Pred. No. 4... 70.2%; Dred. No. 4... 0; Mismatches 3...
                                                                                                                                                                                                                      /strain="c57BL/6J"
/db.xref="MGD:MGI:1905246"
/db.xref="Taxon:10090"
/clone="2310032M04"
/sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          407
                                                                                                                                                                                 1. .1723
/organism="Mus musculus"
                                                                                                                                                              Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="putative"
456 c 454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   evidence: ISS
hemochromatosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="Hfe"
99. .1178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="Hfe"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           956; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1695.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       polyA_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 polyA_site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                     SOTTOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            405
                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             염
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
```

```
BEZ72926 570 bp mRNA linear EST 13-JUL-2000 601171213F1 NIH_MGC_14 Homo sapiens cDNA clone IMAGE:3544803 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTTCATGTTTCAGGAGAGAGTTGAACCTAA-ACATAGAAATTGCCTGACGAACTCCTTGA 1399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              981 AAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCTGGATAACCTTGGCTGTACCC 1040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           954 CCTGGGGACGAGACAAGGTTCACCTGTCAAGTGGAGCACCCAGGCCTGGACCAGCCTCTC 1013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCATTGGAGTCATCAGTGGAATT 1160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCTGTTTTTGTCGTCATCGTTCATTGGAATTTTGTTCATAATATTAAGGAAGAGGCAG 1220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAGAGGGAGTGCATTTATGAGCT 1340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1191 TGAACCACGGAAGAAGAAAACTCAGCCAAAGACTTGGAGGGGGCCACACTTGCTCCA--- 1247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----CTGTAGGACACACTTGGACCTAACACACAGAAACTGCCTGAGAA---CTGTGC 1297
                                                                                                                                                                       680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          953
                                                                                                                                                                                                                                                                                                                     860
                                                                                                                                                                                                                                                                                                                                                                                 920
                                                                                                                                                                                                                                                                                                                                                                                                                                                               833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGGATGCCAAGGAGTTCGAACCT 980
                                                                        473
                                                                                                                                                                                        GATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGCTGGAGTGGGAAAGGCACAAG 740
                                                                                                                                                                                                                                                        ATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACTGCCCTGCACAGCTGCAGCAG 800
                                                                                                                                                                                                                                                                                                                                                                                                                                                TTGCTGGAGCTGGGGAGAGGTGTTTTGGACCAACAAGTGCCTCCTTTGGTGAAGGTGACA
                                                                                                                                                                                                                                                                                                                                                                                                                                  CATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGGCCTTGAACTACTACCCCCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCTGGGGAAGAGCAGAGATATACGTGCCAGGTGGAGCACCCCAGGCCTGGATCAGCCCTTC
GAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAG
                                                                                                                                                                        GGCTACTGGAAGTACGGGTATGATGGGCAGGACCACCTTGAATTCTGCCCTGACACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTTTAGCCTTCTCTGTTCATTTCCTCAAAAGATTTCCCCA 1440
                                             TICTGGACTATTATGGAAAATCACAACCACAGCAAG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BE272926
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                     594
                                                                                                                                                                                                                                                                                                                                    654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1298
                                                                                                                                                                                                       534
                                                                                                                                                                                                                                       681
                                                                                                                                                                                                                                                                                                                                                                    801
                                                                                                                                                                                                                                                                                                                                                                                                                                  861
                                                                          414
                                                                                                          561
                                                                                                                                                                                                                                                                                                    741
               354
                                             525
                                                                                                                                        474
                                                                                                                                                                        621
```

```
979 CTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCTGGATAACCTTGGCTGTAC 1038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       385 ACCAGCTGTTCTGTTCTATGATCATGAGATCGCCGTGTGGGAGCCCGGACTCCATGGG 444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 24.9%; Score 358; DB 10; 99.7%; Pred. No. 1.4e-88; iive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                               Tel: +55-11-2704922
Fax: +55-11-2707001
Email: asimpson@ludwig.org.br
                                                                                                                      BF883952
BF883952.1 GI:12274078
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               92
                                                                                                                                                                                                                                                                                                                         Brazil
                                                                                                                                                 human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches 369;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                     source
                                                                                   RESULT 4
BF883952/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
                                                                                                             DEFINITION
                                                                                                                                                          ORGANISM
                                                                                                                                                                                   REFERENCE
AUTHORS
                                                                                                                      ACCESSION
                                                                                                                             VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                             MEDLINE
                                                                                                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORIGIN
                                                                                                    rocus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                   QΩ
                                                        g
                                      ò
                                           1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       918
                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACTGCCCTGCACAGCTGCAGC 798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           919 AGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGGATGCCAAGGAGTTCGAAC 978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    408 AGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGGATGCCAAGGAGTTCGAAC 467
                                                                                                                                                                                                                                                                                                                                                                                                                              560 GGAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAACAGTACCGA 619
                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             128 AGATTCGGGCCAGGCAGAGAGAGCCTACCTGGAGAGGGACTGCCCTGCAGCTGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    799 AGTTGCTGGAGCTGGGGAGAGGTGTTTTGGACCAACAAGTGCCTCCTTTGGTGAAGGGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       859 CACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGGCCTTGAACTACTACCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ä
                                                                                                                                                                                                                                                                                                                                                                                Length 570;
                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                              35.2%; Score 506.8; DB 10;
99.4%; Pred. No. 6.3e-130;
tive 0; Mismatches 2; I
             GI:9147279
                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                         Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity
Matches 519; Conserv
    BE272926
BE272926.1
                                human.
                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                          source
                                                                                                                                                                                                                                                                                                                                             BASE COUNT
ORIGIN
                                        ORGANISM
                                                                   REFERENCE
AUTHORS
TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                      48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 739
     ACCESSION
             VERSION
KEYWORDS
                                                                                                                                                                                                 FEATURES
                                SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
```

```
1. .384
/organism="Homo sapiens"
/db_ratef="txxxon:9606"
/clone_lib="Er0209"
/dev_stage="Adult"
/dev_stage="Adult"
/note="Organ: lung_tumor; Vector: pucl8; Site_l: Smal;
/note="Organ: lung_tumor; Vector: Reverse products
derived from ORESTES PCR (U.S. Letters Patent application
No. 196,716 - Ludwig Institute for Cancer Research)
profiles into the pucl 8 vector. Reverse transcription of tissue mRNA and cDNA amplification were performed under low stringency conditions."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 38).
Dias Neto,E., Garcia Correa,R., Verjovski-Almeida,S., Briones,M.R., Ragai,M.A., da Silva,W. Jr., Zago,M.A., Bordin,S., Costa,F.F., Goldman,G.H., Carvalho,A.F., Matsukuma,A., Baia,G.S., Simpson,D.H., Brunstein,A., deoliveira,P.S., Bucher,P., Jongeneel,C.V., O'Hare,M.J., Soares,F., Brentani,R.R., Reis,L.F., de Souza,S.J. and Simpson,A.J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            This sequence as derived from the FAPESP/LICR Human Cancer Genome Project. This entry can be seen in the following URL (http://www.ludwig.org.br/scripts/gethtml2.pl?tl=PM4&t2=PM4-ET0209-1212000-003-f07&t3=2000-12-15&t4=1) Seq primer: puc 18 forward High quality sequence stop: 384. High quality sequence stop: 384. Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ij
                                                                                                                                                                                                                                                                                                                 BF883952
PM4-EI0209-151200-003-f07 ET0209 Homo sapiens CDNA, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Contact: Simpson A.J.G.
Laboratory of Cancer Genetics
Ludwig Institute for Cancer Research
Rua Prof. Antonio Prudente 109, 4 andar, 01509-010, Sao Paulo-SP,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Shotgun sequencing of the human transcriptome with ORF expressed sequence tags
Proc. Natl. Acad. Sci. U.S.A. 97 (7), 3491-3496 (2000)
20202663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1; Gaps
Length 384;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                1039 CCCCTGGGGAAGAGCAGATATACGTGCCAGGTGGAGCACC 1080
                                                                                                                                 ;
```

Ŋ

임

q

δ

g

οy

QQ

δ

g

ŏ

ŏ

```
Design and use of two pooled tissue normalized cDNA libraries for alsocovery in swine (2000)
Contact: Smith TPL
USDA, ARS, US Meat Animal Research Center
PO Box 166, Clay Center, NE 68933-0166, USA
Fas: 402 762 4366
Fax: 402 762 4369
Fax: 402 762 4369
Smail: smith@email.marc.usda.gov
Single pass sequencing. Bases called and alt_trimmed with phred
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus. l. (bases 1 to 523)
Fahrenkrug, S.C., Freking, B.A., Rohrer, G.A., Smith, T.P.L., Casas, E Stone, R.T., Heaton, M.P., Grosse, W.M., Bennett, G.A., Laegreid, W.W. and Keele, J.W.
          GTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCAAAAGAAGCGGAGATTTAACGGGG 199
                                                                                            GGATGACCAGCTGTTCGTGTTCTATGATCATGAGAGTCGCCGTGTGGAGCCCCCGAACTCC 439
                                                                                                                                                                                                                                                                                                                                                                                                                             200 ACGIGCGGCCAGAGCIGGGGAAAIGGGCCCGCGAGCCAGGCCGGCGCTICICCTCCIGAI
                                                                                                                                           GCTTTTGCAGACCGCGCTCCTGCAGGGGCGCTTGCTGCGTTCACACTCTGCACTACCT
                                                                                                                                                                                                         CTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGTTTGAAGCTTTGGGGCTACGT
                                                                                                                                                                                                                            440 AIGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGCTGAGGTCAGATCTGAAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         560 G--------GAGTCCCACACCCTGCAGGTCATGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               500 GIGGGAICACAIGTICACIGIIGACIICIGGACIAITAIGGAAAAICACAACCACAGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           596 AATGCAAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGGCAGGACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   brubu089
230846 MARC 2PIG Sus scrofa cDNA 5', mRNA sequence.
BF080089
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BACKWARD: GTTTTCCCAGTCACGACG
Plate: 48 row: E column: 9
Seg primer: ATTTAGGTGACACTATAG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         and -minmatch 12 options.
PCR PRimers
FORWARD: AGGAAACAGCTATGACCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BF080089.1 GI:10873919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         534 ccredagriccaccre 550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           656 CCTTGAATTCTGCCCTG 672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               pig.
Sus scrofa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
          140
                                                                                                          99
                                                                                                                                         260
                                                                                                                                                                                                           320
                                                                                                                                                                                                                                                                           380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
BF080089
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LOCUS
                                      g
                                                                          ò
                                                                                                        g
                                                                                                                                         QΥ
                                                                                                                                                                          qq
                                                                                                                                                                                                           Óλ
                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                         δy
                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                           QΥ
                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             USDA, ARS, US MEAT Animal Research Center
PO Box 166, Clay Center, NE 68933-0166, USA
Tel: 402 762 4366
Fax: 402 762 4390
Email: smith@email.marc.usda.gov
Single pass sequencing. Bases called and alt_trimmed with phred
V0.980904-e. Vector identified by cross_match with the -minscore 18
PCR PRimers
FORWARD: AGGAAACAGCTATGACCAT
BACKWARD: GTTTTCCAGTATGACCAT
BALE: 100 row: Column: 24
Seq primer: ATTTAGGTGACATATG.
                                                                                                                                                                                                                                                                                                                                                                                                                          EST 30-JUL-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Design and use of two pooled tissue normalized cDNA libraries for EST discovery in swine Unpublished (2000)
Contact: Smith TPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Sus scrofa"
/db_xref="taxon:9823"
/db_xref="taxon:9823"
/clone_lib="MARC 2PIG"
/tissue_type="pooled"
/lab_host="DH10B"
/note="Vector: pCMV SPORT6; Site_1: Xbal; Site_2: Xhol;
Library made from pooled tissue from testis, ovary,
endometrium, hypothalamus, pitultary, and placenta."
a 180 c 164 g 98 t
                                                                                               324 ACCAGCTG-TCGTGTTCTATGATCATGAGAGTCGCCGTGTGGAGCCCCGAACTCCATGGG 266
                                                    565 CCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAGGGCT 624
                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                   445 TTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGCTGAGTCAGAGTCTGAAAGGGTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        550;
                                                                                                                                                                                                                                                                                                                                                                                                   364041 MARC 2PIG Sus scrofa cDNA 5', mRNA sequence.
B1339179
B1339179.1 GI:15032462
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 284.2; DB 10;
Pred. No. 5.8e-68;
0; Mismatches 113;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19.7%;
74.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches 413; Conservative
                                                                                                                                                                                                                                                                                                  685 GGAGAGCAGC 694
                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      scrofa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      pig.
Sus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local 3
```

DEFINITION ACCESSION VERSION

RESULT BI339179 LOCUS

25

KEYWORDS SOURCE ORGANISM

REFERENCE AUTHORS JOURNAL

COMMENT

TITLE

BASE COUNT ORIGIN

FEATURES

EST 18-OCT-2000

499

559

595 473

293

ဖ

```
109 t
                                                                                                                                                                                                                             /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TGGAAAATCACAACCACAGCAAG------
                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                             144 g
                                                                                                                                                                                                                                                                                                                                                                                                                                         tch
al Similarity 73.3%;
357; Conservative
          National Institute
                    6001 Executive F
20892-9643, USA
                                                                                                                                                                                                                                                                                                                                                                                              ø
                                                                                                                                                                                                                                                                                                                                                                                              103
                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                              COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         423
                                                                                                                                                                                                        FEATURES
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                             BASE CC
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    合
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    UI-W-CGOp-bik-d-03-0-UI.S1 NIH_BMAP_Ret4_S2 Mus musculus cDNA clone BE994943
                                                                                                                                                                                    5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mus musculus
Eukaryota, Metazoa, Chordata; Craniata; Vertebrata; Euteleostomi,
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
1 (bases 1 to 489)
Bonaldo,M.F., Lennon,G. and Soares,M.B.
Normalization and subtraction: two approaches to facilitate gene
                             238
                                                                                                                                                                                                                                                                   62 AGCGGCCGAAAAGCACCTGGAAGCGCGGTCCGAGCC--GGGAAATGGGCCCACAAAGCCCG 119
                                                                                                                                                                                                                                                                                                                                                                                               418
                                                                                                                                                                                                                                                                                                                                                                                                                     299
                                                                                                                                                                                                                                                                                                                                                                                                                                            478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               419
                                                                                                                                                                                                        119 AGCCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCCGTTTCCCCGCCCCCCAAA 178
                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                              61
                                                                                                                                                                                                                      2 AGCCTTGGCAATGGCTCCAGGGTGACTTCTTGAGCCACCTCGGTTTCCCCGCCCCAGCCA
                                                                                                                                                                                                                                                                                                                 120 GCGGGGGCTTCTGCTCCTGTGTTCTGTGGGCCGTGGCCATGATCGAGCGCGCG
                                                                                                                                                                                                                                                                                                                                                                                                          240 GTTTGAGGCCTTGGGCTACGTGGACGACCAGCTGTTTGTGTTTTTTGAGACTACAGAGAGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                           479 GCTGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     179 AGAAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCCAG
                                                                                                                                                                                                                                                                                                     GCCGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCG
                                                                                                                                                                                                                                                                                                                                                  180 GCCACACTCCCTGCTCTTCCTCTTCATGGGCGCCTCGGAGCCAGATCTCGGGCTGCCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                            CCGTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGCCTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      539 GGAAAATCACAACCACAGCAAG----------GAGTCCCACACCCT
                                                                                                                                                                                                                                                                                                                                                                                               GITIGAAGCITIGGGCTACGIGGAIGACCAGCIGITCGIGTICTAIGAICAIGAGAGICG
                                                                                                                                                                                    26;
                                                                                                                                                              Length 523;
                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 276.6; DB 10;
Pred. No. 7.4e-66;
0; Mismatches 109; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Genome Res. 6 (9), 791-806 (1996) 97044477
                     /organism="Sus scrofa"
  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BE994943.1 GI:10678689
                                                                                                                                                             tch 19.2%;
al Similarity 74.2%;
388; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         house mouse.
                                                                                                                                                               Query Match
Best Local Similarity
Matches 388; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        discovery
                                                                                                                   103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                   BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                     239
                                                                                                                                                                                                                                                                                                                                                                                                                                             419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BE994943
  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                   qq
                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                ò
```

```
/db_xref="taxon:10090"
/db_xref="taxon:10090"
/db_xref="taxon:10090"
/clone="ul-M-CG0p-bik-Ret4_S2"
/lab_host="DH10B (Life Technologies)"
/lab_host="DH10B (Life Technologies)"
/note="vector: pT773D-pac (Pharmacia) with a modified polylinker; Site_1: Not I; Site_2: Eco RI; The polylinker; Site_1: Not I; Site_2: Eco RI; The NIH BMAP_Ret4_S2 library is a subtracted library, ultimately derived from mouse retina tissue libraries at various stages of development. For a detailed description of the library from which this clone was derived, please visit our web Site at brainest.eng.ulowa.edu.
TAG_SEQ=None found"
                                                                             Far: 301 443 1706
Fax: 301 443 1706
Email: mEST@mail.nih.gov
Diligo-dr track not found, Not I site shown in beginning of sequence is likely internal to the message. CDNA Library Preparation: M.B. Soares Lab Clone distribution: Researchers may obtain BMAP CDNA Clones from RESEARCH GENETICS. It should be noted that Bento Soares is generating a small number of additional specialized considered under appropriate and limited collaborative arrangements following repetitive elements were found in this cDNA sequence: 1-31, >(CAG)n#$imple_repeat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             243 ATCTGAGTCAGAGCCTGAAAGGGTGGGACTACATGTTCATAGTAGACTTCTGGACCATCA 302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     303 TGGGCAACTATAACCACAGTAAGGTCACGAAGTTGGGAGTGGTGGTCCGAGTCCCACATCC 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACGGGTATGATGGGCAGGACCACCTTGAATTCTGCCCTGACACACTGGATTGGAGAGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        478 AGCTGAGTCAGAGTCTGAAAGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAGGGCTACTGGAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           238 GGCCGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GITCACACICICIGCACIACCICITCAIGGIGCCICAGAGCAGGACCIIGGICIIICCI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ----GAGICCCACACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3 GGCGCTGCTGCTGCTACTGCTGTGGTCCGTGGCCCCGCAGGCACTGCCACCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGTTTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAGAGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCGTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGC
                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 489
onal Institute of Mental Health
Executive Blvd. Room 7N-7190, MSC 9643, Bethesda,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 259.4; DB 10; Length
Pred. No. 4.4e-61;
0; Mismatches 106; Indels
```

음 δ

```
921 AACATCACCATGA 933
                                                                                                                                                                                                                                                                                                                                                                                                                                         445 AACATCACTATGA 457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           discovery
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               97044477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  POLYA-No
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
BE995172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                            g
                                                                                                                       qq
                                                                                                                                                                                                            Dp
                                                                                                                                                                                                                                                                                        qq
                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                     δ
                                                                                                                                                                   δ
                                                                                                                                                                                                                                                  δy
                                                                                                                                                                                                                                                                                                                                   δλ
                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Mus musculus"
/strain="C57BL/6J"
/db_xref="taxon:10090"
/db_xref="taxon:10090"
/clone="ID"-NIE_BMAP_MSC"
/clone="ID"-NIE_BMAP_MSC"
/dev_stage="27-32 days"
/dab_host="DH10B (Life Technologies)"
/note="Vector: p7730-pac (Pharmacia) with a modified polylinker; Site_1: Not I; Site_2: Eco RI; The NIH_BMAP_MSC library is a non-normalized library constructed from mouse spinal cord. The tag is a string of 5 nucleotides present between the Not I site and the oligo-dT track. The library was constructed as described by Bonaldo, Lennon and Soares, Genome Research 6: 791-806
/1996. Tissue provided by Ms. Annie Novakovich,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Far: 301 443 1706

Fax: 301 443 1706

Fax: 301 443 1706

Email: mEST@mail.inh.gov
Oligo-dr track not found, Not I site shown in beginning of sequence is likely internal to the message. CDNA Library Preparation: M.B. Soares Lab Clone distribution: NIH BMAP CDNA Clones will be made available by the means for distribution of the BMAP cDNA clones. The determines the means for distribution of the BMAP cDNA clones; this record will be updated accordingly when that means is determined. The following repetitive elements were found in this cDNA sequence: 35-30. >(CAG)n#Simple_repeat
BODYA=NO.
                                                                                                                                          A1850020 457 bp mRNA linear EST 15-JUL-1999 UI-M-BGO-aib-g-10-0-UI.sl NIH_BMAP_MSC Mus musculus cDNA clone UI-M-BGO-aib-g-10-0-UI 3', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                    Mus musculus
Bukaryota, Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
1 (bases 1 to 457)
                                                                                                                                                                                                                                                                                                                                                                Bonaldo,M.F., Lennon,G. and Soares,M.B.
Normalization and subtraction: two approaches to facilitate gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              561 GAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAG 620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Contact: Chin, H
National Institute of Mental Health
6001 Executive Blvd. Room 7N-7190, MSC 9643, Bethesda, MD
20892-9643, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17.5%; Score 251.4; DB 9; Length 457; 79.6%; Pred. No. 7.2e-59;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   84 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                              Genome Res. 6 (9), 791-806 (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TAG_LIB=NIH_BMAP_MSC
TAG_TISSUE=spinal-cord
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 144 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TAG_SEQ=TCGAA"
                                                                                                                                                                                                                           AI850020.1 GI:5493926
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1. .457
                                                                                                                                                                                                                                                                   house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
694 CAGAACC 700
                                      483 CCGAGCC 489
                                                                                                                                                                                                                                                                                                                                                                                                             discovery
                                                                                                                                                                                                                                                                                                                                                                                                                                                 97044477
                                                                                                                                                                                                     AI850020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      297;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best_Loca
Matches
                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
TITLE
                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
MEDLINE
                                                                                                 RESULT
AI850020
                                                                                                                                                                                                                        VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMMENT
                                                                                                                                          LOCUS
```

ŏ

```
Email: mEST@mail.nih.gov
Oligo-dr track not found, Not I site shown in beginning of sequence
is likely internal to the message. cDNA Library Preparation: M.B.
Soares Lab Clone distribution: Researchers may obtain BMAP CDNA
Clones from RESEARCH GENETICS. It should be noted that Bento Soares
is generating a small number of additional specialized
non-redundant arrays of BMAP cDNAs whose availability will be
considered under appropriate and limited collaborative arrangements
The following repetitive elements were found in this cDNA sequence:
Seq primer: M13 Forward
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              455 bp mRNA linear EST 05-0CT-2000 UI-M-CG0p-bil-h-10-0-UI.sl NIH_BMAP_Ret4_S2 Mus musculus cDNA clone BE995172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 (bases 1 to 455)
Bonaldo,M.F., Lennon,G. and Soares,M.B.
Normalization and subtraction: two approaches to facilitate gene
                                                                                                                                                                                                                                                                                                                           860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              621 GGCTACTGGAAGTACGGGTATGATGGCCAGGACCACCTTGAATTCTGCCCTGACACACTG 680
                              741 ATTCGGGCCAGGCAGACAGGGCCTACCTGGAGAGGGACTGCCCTGCACAGCTGCAGCAG 800
                                                                                                                                                                                                                                                                      324
                                                                                                                                                                                                                                                                                                                                                  325 CTCCTGGAGCTGGGGAGAGGCGTTCTGGGACAGCAAGTGCCTACTTTGGTGAAAGTGACT 384
                                                                                                                                                                                                                                                                                                                                                                                                                                                            801 TIGCTGGAGCTGGGGAGGGTGTTTTGGACCAACAAGTGCCTCCTTTGGTGAAGGTGACA
                                                                                                       681 GATTGGAGGAGCAGAACCCAGGGCCTGGCCCACCAAGCTGGAGAGGCAAAGGCACAAG
                                                                                                                                                                                                                                                                                                                                                                                                                             861 CATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGGCCTTGAACTACTACCCCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Contact: Chin, H
National Institute of Mental Health
6001 Executive Blvd. Room 7N-7190, MSC 9643, Bethesda,
20829-9643, USA
Tel: 301 443 1706
Fax: 301 443 9890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /strain="C57BL/6J"
/db_xref="taxon:10090"
/clone="UI-M-CG0p-bil-h-10-0-UI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Genome Res. 6 (9), 791-806 (1996)

    .455
    /organism="Mus musculus"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BE995172.1 GI:10679153
```

us-09-497-957-9.rst

```
W21141
W21141.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ď
      Possible
                                                                                                                                                                                                                                                                                                                                                                                                                                                    101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   uman.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local 9
                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11
                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           294 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VERSION
KEYWORDS
SOURCE
                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                W21141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          合
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus. I (bases I to 464)
Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T., Gelsel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M., Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B., Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and
                                                                                                                                                                                                                   ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EST 06-FEB-1997
ultimately derived from mouse retina tissue libraries at various stages of development. For a detailed description of the library from which this clone was derived, please visit our web site at brainest.eng.uiowa.edu.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AA217236

464 bp mRNA linear EST 06-FEB-15
mu89b05.r1 Soares mouse lymph node NbMLN Mus musculus cDNA clone
IMAGE:652689 5' similar to TR:0340354 G940354 CLASS I
HISTOCOMPATIBILLITY ANTIGEN-LIKE PROTEIN. ;, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Email: mouseest@watson.wustl.edu
This clone is available royalty-free through LLNL; contact the
IMAGE Consortium (info@image.llnl.gov) for further information.
                                                                                                                                                                                                                                                                                                                                                                                                                                                    265
                                                                                                                                                                                                                                                                                                                                                                                                                740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           385
                                                                                                                                                                                                                                                                               86 GAGTCCCACATCCTGCAGGTGGTCCTAGGCTGTGAGGTGCATGAAGACAACAGTACCAGC 145
                                                                                                                                                                                                                                                                                                                                     680
                                                                                                                                                                                                                                                                                                                                                           146 GCCTTCTGGAGATATGGTTATGACGGGCAAGATCACCTGGAATTCTGCCCCAAGACACTA 205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              266 ATCCGTGCCAAACAGAACAGGGACTACCTGGAGAAGGACTGCCCCGAGCAGCTGAAACGG 325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    801 TIGCIGGAGCIGGGGAGAGGIGTITIGGACCAACAAGIGCCICCITIGGIGAAGGIGACA 860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               920
                                                                                                                                                                                                                                                         561 GAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAG 620
                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                      206 AACTGGAGCGCAGGCGCAGGGGCCTGGGCCACCAAGGTGGAATGGGACGAGCAAAG
                                                                                                                                                                                                                                                                                                                                     GGCTACTGGAAGTACGGGTATGATGGGCAGGACCACCTTGAATTCTGCCCTGACACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          741 ATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACTGCCCTGCACAGCTGCAGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           326 CTCCTGGAGCTGGGGAGAGGCGTTCTGGGACAGCAAGTGCCTACTTTGGTGAAAGTGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 861 CATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGGCCTTGAACTACTACCCCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACAAGCTGGAGTGGGAAAGGCACAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unpublished (1996)
Contact: Marra M/Mouse EST Project
WashU-HMI Mouse EST Project
WashUngton University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
                                                                                                                                                                            17.2%; Score 248.4; DB 10; Length 455; 79.5%; Pred. No. 4.9e-58; Live 0; Mismatches 76; Indels 0;
                                                                                                    83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      The WashU-HHMI Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AA217236.1 GI:1826237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         921 AACATCACCA 930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AACATCACTA 455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Waterston, R.
                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MGI:398537
                                                                                                      ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AA217236
                                                                                                    99
                                                                                                                                                                                                                     294;
                                                                                                                                                                                  Query Match
                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LOCUS
                                                                                                                                                                                                     Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 10
AA217236/c
                                                                                                    BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               446
                                                                                                                                                                                                                                                                                                                                     621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
```

g

g ò QQ ò g õ g ò g ò g

ò

```
3'j; double-stranded cDNA was ligated to Eco RI adaptors (Pharmacia), digested with Not I and cloned into the Not I and Eco RI sites of the modified pT/T3 vector. RNA provided by Dr. Bertrand Jordan. Library constructed and normalized by Bento Soares and M.Fatima Bonaldo."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     W21141 268 bp mRNA linear EST 20-AUG-1996 zb51g06.rl Soares_fetal_lung_NbHL19W Homo sapiens cDNA clone IMAGE:307162 5', mRNA sequence.
                                                                                                                                                                                                                                                                         /note="Organ: lymph node; Vector: pT/T3D-Pac (Pharmacia) with a modified polylinker; Site_1: Not I; Site_2: Eco RI; lst strand cDNA was primed with a Not I - oligo(dT) primer [5,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7
                                                                                                                                                                                                                                                                                                                                                                569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       630 AAGTACGGGTATGATGGGCAGGACCACCTTGAATTCTGCCCTGACACACTGGATTGGAGA 689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      354 TCCTTGTTTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAG 413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           93 AGATATGGTTATGACGGGCAAGATCACCTGGAATTCTGCCCCAAGACACTAAACTGGAG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        534 ATTATGGAAAATCACAACCACAGCAAG--------GAGTCCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       570 ACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAGGGCTACTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTGCGTTCACACTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  414 AGTCGCCGTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CIGCAGCIGAGICAGAGICTGAAAGGGIGGGAICACAIGITCACIGITGACITCTGGACI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 464;
  on wrong strand
                                                                                                        /strain="C57BL/6J"
/db_xref="taxon:10090"
/clone="IMAGE:652689"
/clone_lib="Soares mouse lymph node NbMLN"
/sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        89; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 231.6; DB 9;
Pred. No. 2.4e-53;
0; Mismatches 89;
                      Seq primer: -28m13 rev2 ET from Amersham
Location/Qualifiers
reversed clone: similarity
                                                                                                                                                                                                              /tissue_type="lymph node"
/dev_stage="4 weeks"
/lab_host="DH10B"
                                                                                    /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           690 GCAGCAGAACCCAGGGCCTGGCCC 713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   34 GCAGCCGAGCCAGGGCCTGGGCAC 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16.1%;
74.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GI:1298018
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches 330; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
```

ORGANISM

REFERENCE AUTHORS JOURNAL MEDLINE

COMMENT

TITLE

```
Contact: Smith TPL
USDA, ARS, US Meat Animal Research Center
USDA, ARS, US Meat Animal Research Center
Do Box 166, Clay Center, NE 68933-0166, USA
Tel: 402 762 4366
Fax: 402 762 4366
Fax: 402 762 4390
Single pass sequencing. Bases called and alt_trimmed with phred
v0.980994.e. Vector identified by cross_match with the -minscore 18
PRIMERS
                                                                                                          Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea; Bovidea; Bovidea; Bovidea; Bovidea; Bovidea; Bovidea; Boxidea; Boxida; Cosse, W.M., Freking, B.A., Roberts, A.J., Stone, R.T., Casas, E., Wray, J.E., White, J., Cho, J., Fahrenkrug, S.C., Bennett, Pertea, G., Heaton, M.P., Laegreid, W.W., Rohrer, G.A., Chitko-McKown, C.G., Pertea, G., Holt, I., Karamycheva, S., Liang, F., Quackenbush, J. and Keele, J.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="Vector: pCMV SPORT6; Site_1: Xbal; Site_2: Xhol; Library made from pooled tissue from testis, thymus, semitendonosus muscle, longissimus muscle, pancreas, adrenal, and endometrium."
                                                                                                                                                                                                                                                                                                Sequence evaluation of four pooled-tissue normalized bovine cDNA libraries and construction of a gene index for cattle Genome Res. 11 (4), 626-630 (2001) 21180013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                561 GAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAG 620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                741 ATTCGGGCCAGGCAGACAGGGCCTACCTGGAGAGGGACTGCCCTGCACAGCTGCAGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         621 GGCTACTGGAAGTACGGGTATGATGGCCAGGACCACCTTGAATTCTGCCCTGACACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        681 GATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGCTGGAAAGGCACAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 546;
214520 MARC 2BOV Bos taurus cDNA 5', mRNA sequence.
BE809138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      39; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 214.6; DB 1
Pred. No. 1.4e-48;
0; Mismatches 39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            801 TIGCIGGAGCIGGGGAGGIGITITGGACCAACAAG 837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /db_xref="taxon:9913"
/clone_lib="MARC 2BOV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BACKWARD: GTTTTCCCAGTCACGACG
Plate: 71 row: A column: 5
Seq primer: ATTTAGGTGACACTATAG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Bos taurus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /tissue_type="pooled"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FORWARD: AGGAAACAGCTATGACCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                       GI:10240250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                14.9%;
85.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      238; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                       BE809138.1
                                                                                                  Bos taurus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                126
                                                            EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
  DEFINITION
                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                      JOURNAL
MEDLINE
                    ACCESSION
VERSION
                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                  AUTHORS
                                                        KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                              TITLE
                                                                                                                                                                                                                                                                                                                                                                           COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               òγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hiller, L., Lennon, G., Becker, M., Bonaldo, M.F., Chiapelli, B., Chisoe, S., Dietrich, N., DuBuque, T., Fevello, A., Gish, W., Hawkins, M., Hultman, M., Kucaba, T., Lacy, M., Le, M., Mardis, E., Moore, M., Morie, M., Prange, C., Rifkin, L., Rohlfing, T., Schellenberg, K., Soares, M.B., Tan, F., Thierry-Meg, J., Trevaskis, E., Underwood, K., Wohldmann, P., Waterston, R., Wilson, R. and Marra, M. Generation and analysis of 280,000 human expressed sequence tags Genome Res. 6 (9), 807-828 (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EST 25-APR-2001
              Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                              Email: estewatson.wustl.edu
This clone is available royalty-free through LLNL; contact the
This clone is available royalty-free through LLNL; contact the
Insert Length: 1642 Std Error: 0.00
Seq primer: mob.REGA+ET
High quality sequence stop: 173.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1201 TAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGCCACTACGTCTTAGCTGAAC 1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60 GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ij
                                                                                                                                                                                                                                                Contact: Wilson RK
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 226.4; DB 10; Length 268; Pred. No. 5.1e-52; 0; Mismatches 1; Indels 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ďq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15.7%;
99.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity 99.2
Matches 238; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1..268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BE809138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
```

BASE COUNT ORIGIN

1261

δ g ò g δý d à g

1321

RESULT 12 BE809138

source

FEATURES

ö

Gaps

```
174 CCAAAAGAAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGA 233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                534 ATTATGGAAAATCACAACCACAGGAAGG 561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       189 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mRNA sequence.
B1452668
B1452668.1 GI:15243324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           220 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 1,
BI452668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORIGIN
                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                             ò
                                                                                                                                                                                                                                                                                    ò
                                    481 bp mRNA linear EST 26-NOV-2001 BB851691 RIKEN full-length enriched, B16 FlOx cells Mus musculus CDNA clone G370002P09 5', mRNA sequence. BB851691 GI:17093145
                                                                                                                                                                                                                                                                                                                                           Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sclurognathi; Muridae; Murinae; Mus.
1 (bases I to 481).
1 klases I to 481).
1 klases I to 481.
1 klases I 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RIKEN integrated sequence analysis (RISA) system--384-format sequencing pipeline with 384 multicapillary sequencer. Genome Res. . 10 (11), 1757-1771 (2000) Konno, H., Fukunishi, Y., Shibata, K., Itoh, M., Carninci, P., Sugahara
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ;;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Email: genome-resignscriken.go.jp,
URL:http://genome.gsc.riken.go.jp,
URL:http://genome.gsc.riken.go.jp,
URL:http://genome.gsc.riken.go.jp,
URL:http://genome.gsc.riken.go.jp,
URL:http://genome.gsc.riken.go.jp,
W. Konno, H., Okazaki, Y., Muramatsu, M., and Hayashizaki, Y.
Normalization and subtraction of cap-trapper-selected cDNAs to
prepare full-length cDNA libraries for rappid discovery of new
genes. Genome Res. 10 (10), 1617-1630 (2000)
wagi, K., Fujiwake, S., Inoue, K., Togawa, Y., Izawa, M., Ohara, E.,
Matahiki, M., Yoneda, Y., Ishikawa, T., Ozawa, K., Tanaka, T., Marsuura
'S., Kawai, J., Okazaki, Y., Muramatsu, M., Inoue, Y., Kira, A. and
Hayashizaki, Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Unpublished (2001)
Contact: Yoshihide Hayashizaki
Contact: Yoshihide Hayashizaki
Contact: Yoshihide Hayashizaki
Sciences Cencer(GSC), Yokohama Institute
The Institute of Physical and Chemical Research (RIKEN)
The Institute of Physical and Chemical Research (RIKEN)
Tel: 81-45-503-922
Fax: 81-45-503-9216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /strain="C57BL/6J"
/db_xref="taxon:10090"
/clone==G370002P09"
/clone_lib="RIKN full-length enriched, B16 F10Y cells"
/cell_type="B16 F10Y cells"
134 c 110 g 112 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   οŧ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     encyclopedia: real-time sequence clustering for construction of nonredundant cDNA library. Genome Res. . 11 (2), 281-289 (2001) Please visit our web site (http://genome.gsc.riken.go.jp) for further details.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         114 TCCTGAGCCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCC 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          \Upsilon. and Hayashizaki, \Upsilon. Computer-based methods for the mouse full-length cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  14.7%; Score 211.2; DB 9; Length 481; 68.8%; Pred. No. 1.1e-47;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pred. No. 1.1e-47;
0; Mismatches 133;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best_Local Similarity 68.8
Matches 308; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              e mouse tissues
                                                                                                                                                                                                                                                                                                                         Mus musculus
                                                                                                                                                                                                                                                                                    house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
                                                                                                                                                                                                                                                                                                                         ORGANISM
       RESULT 1
BB851691
                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                   VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                                                                                                                    SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
```

```
B1452668 831 bp mRNA linear EST 21-AUG-2001 603169877F1 NCI_CGAP_Mam5 Mus musculus CDNA clone IMAGE:5249395 5',
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="Organ: mammary; Vector: pCMV-SPORT6; Site_1: SalI; Site_2: NotI; Cloned unidirectionally. Primer: Oligo dr. Library constructed by Life Technologies. Investigators providing samples: Lothar Hennighausen/Robin Humphreys,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Unpublished (1999)

Contact: Robert Strausberg, Ph.D.

Contact: Robert Strausberg, Ph.D.

Email: Gapabs-remail.nih.gov

Tissue Procurement: Lothar Hennighausen Ph.D., Robin Humphreys

CDNA Library Preparation: Life Technologies, Inc.

CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)

DNA Sequencing by: Incyte Genomics, Inc.

Clone distribution: MGC clone distribution information can be

found through the I.M.A.G.E. Consortium/LLNL at:

http://mage.llnl.gov

Plate: LLAM11629 row: j column: 20

High quality sequence stop: 818.
                                                                                                                                                                                                                                                                                                                                            413
                                                                                                                                                                                                                                                                                                                                                                                    1 (bases 1 to 831)
NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC)
69 AGTGAAGACCGGTGGACCCAGC----TGAGGACATGAGCCTATCAGCTGGGCTCCCT 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         302 AGTCGCCGTGCTGAGCCCAGGGCCCCGTGGATCTTGGAGCAAACCTCAAGCCAGCTGTGG
                                                                        GCCAGGCCGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTG
                                                                                                                                                                                                                                                                                                                                                354 ICCTIGITIGAAGCTITGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  414 AGTCGCCGTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGG
                                                                                                                                                                                                              294 CTGCGTTCACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            474 CIGCAGCIGAGICACAGAGICIGAAAGGGIGGGAICACAIGIICACIGIIGACIICIGGACI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /strain="C57/B6"
/db_xref="taxon:10090"
/clone="IMAGE:5249395"
/clone=lib="NCI_CGAP_Mam5"
/tissue_type="tumor, gross tissue"
/dev_stage="7 months"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        215
```

```
MIKEN integrated sequence analysis (RISA) system--384-format sequencing pipeline with 384 multicapillary sequencer. Genome Res. . 10 (11), 1757-1771 (2000) Konno, H., Fukunishi, Y., Shibata, K., Itoh, M., Carninci, P., Sugahara Konno, H., Fukunishi, Y., Computer-based methods for the mouse full-length cDNA encyclopedia: real-time sequence clustering for construction of a nonredundant cDNA library. Genome Res. . 11 (2), 281-289 (2001) Please visit our web site (http://genome.gsc.riken.go.jp) for further details.
Email: genome res@gsc.riken.go.jp,
URL:http://genome gsc.riken.go.jp,
Carnindi.p., Shibata,Y., Haydsu,N., Sugahara,Y., Shibata,K., Itoh
Carnindi.p., Shibata,Y., Haydsu,N., and Hayashizaki,Y.
N., Konno,H., Okazaki,Y., Muramatsu,M. and Hayashizaki,Y.
Normalization and subtraction of cap-trapper-selected cDNAs to
prepare full-length cDNA libraries for rapid discovery of new
pagare full-length cDNA libraries for rapid discovery of new
genes. Genome Res. 10 (10), 1617-1630 (2000)
wagi,K., Fujiwake,S., Inoue,K., Togawa,Y., Izawa,M., Ohara,E.,
Watehiki,M., Yoneda,Y., Ishikawa,T., Ozawa,K., Tanaka,T., Matsuura
Hayashizaki,Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /db_xref="taxon.10090"
/dbone="G370049A15"
/clone_lib="RIKEN full-length enriched, B16 F10Y cells"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            116 TCCCTGTGCGGCCGCTGCTGCTGCTGCTGTGGTCCGTGGCCCCGCAGGCAC 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      109 GCATCTCCTGAGCCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCC 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    169 GCCCCCCAAAAGAAGGGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCC 228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                349 GICITICCITGITIGAAGCITIGGGCTACGIGGAIGACCAGCIGITCGIGITCIAIGAIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             409 ATGAGAGTCGCCGTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3 GGAGGICIGGAACCICAGCAAIGGCIACAGGGIGACIICIIGGAICCICCACGIIICCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  63 ATCCTAGIGAAGACCGGIGGACCCAGC-----TGAGGACAIGAGCCIATCAGCIGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        469 TGTGG-CTGCAGCTGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     229 CGCGAGCCAGGCCGCCTTCTCCTCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             296 ATGAGAGTCGCCGTGCTGAGCCCCAGGGCCCCGTGGATCTTGGAGCAAACCTCAAGCCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 502;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 198.8; DB 9;
Pred. No. 3.3e-44;
0; Mismatches 137;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /cell_type="B16 F10Y cells
139 c 147 g 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGGACTATTATGGAAAATCACAACCACAGCAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1. .502
/organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /strain="C57BL/6J"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  13.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           al Similarity 68.1
309; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mouse tissues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mus musculus

Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

Bukaryota; Metazoa; Chordata; Sciurognathi; Muridae; Murinae; Musculus

1. (Dases 1 to 502)

3. Akimura, T., Arakawa, T., Carninci, P., Furuno, M., Hanagaki, T.,

1. Ito, M., Hanancho, K., Hirzoka, T., Hirzoka, T., Imotani, K., Ishii,

1. Y., Ito, M., Rawai, J., Kojima, Y., Konno, H., Kouda, M., Matsuyama, T.,

1. Nakamura, M., Nishi, K., Nomura, K., Numasaki, R., Okazaki, Y., Okido, T.,

Salto, R., Sakai, K., Sakai, K., Sakazune, N., Sasaki, D., Sato, K.,

Shibata, K., Shinagawa, A., Shirzaki, T., Sogabe, Y., Suzuki, H., Tagawa

3. A., Takahashi, F., Takaku-Akahira, S., Tanaka, T., Tomaru, A., Towaru, A., Takahashi, F., Takaku-Akahira, S., Tanaka, T., Tomaru, A., Towaru, A., Towaru, A., Towaru, A., Towaru, A., Towaru, A., Towaru, A., Muramatsu, M. and Hayashizaki, Y.

RIKEN Encyclopedia of Mouse Full-length cDNAs (Akimura, T., et al.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BB858165 RIKEN full-length enriched, B16 F10Y cells Mus musculus cDAR clone G370049A15 5', mRNA sequence.
BB858165 GI:17099619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Contact: Yoshihide Hayashizaki
Laboratory for Genome Exploration Research Group, RIKEN Genomic
Sciences Center(GSC), Yokohama Institute
The Institute of Physical and Chemical Research (RIKEN)
1-7-22 Suehiro-cho, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan
Tel: 81-45-503-9222
                                                                                         4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGAGAGTTGAACCTAA-ACATAGAAATTGCCTGACGAACTCCTTGATTTTAGCCTTCTCT 1413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1295 AAGGAGACAAAACTAGAGACTCAAAGAGGGAGTGCATTTATGAGCTCTTCATGTTTCAGG 1354
                                                                                                                                                                                                                                                                                                                                GAGATATACGTGCCAGGTGGAGCACCCAGGCCTGGATCAGCCCCTCATTGTGATCTGGGA 1114
                                                                                                                                                                                                                                                                                                                                                                                                                          GCCCTCACCGTCTGGCACCCTAGTCATTGGAGTCATCAGTGGAATTGCTGTTTTTGTCGT 1174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CATCTTGTTCATTGGAATTTTGTTCATAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGC 1234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CATGGGGCACTACGTCTTAGCTGAACGTGACACGCAGCCTGCAGACTCACTGTGGG 1294
                                                                                                                                                                                                                                     995 CAATGGGGATGGGACCTACCAGGGCTGGATAACCTTGGCTGTACCCCTGGGGAAGAGCA 1054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      359 GAGAAAACTCAGCCAAAGACTTGGAGGGGCACACTTGCTCCTCCA------CTGTAGG 408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            935 GIGGCIGAAGGAIAAGCAGCCAAIGGAIGCCAAGGAGIICGAACCIAAAGACGIAIIGCC 994
                                                                                                                                                                  122 AAGGTTCACCTGTCAAGTGGAGCACCCAGGCCTGGACCAGCCTCTCACTGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 10; Length 831;
                                                                                         0; Mismatches 142;
                      Score 203.8; DB 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTTCATTTCCTCAAAAGATTTCCC 1438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  14.2%;
68.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Unpublished (2001)
                                                                    Similarity 68.59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       house mouse.
                                             Query Match
Best Local Simi
Matches 346;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1175 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1235
                                                                                                                                                                                                                                                                                                                                                                                                                                    1115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                                                         ~
                                                                                                                                                                                                                                                                                          62
                                                                                                                                                                                                                                                                                                                                        1055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BB858165
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VERSION
KEYWORDS
SOURCE
```

οy g á g Ω q ŏ g ò

g ö g ŏ QΩ

ò

ò 임 ä

8;

415

408

348

288

Search completed: June 19, 2002, 07:21:40 Job time: 2586 sec

```
(without alignments)
7004.836 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | K_ceneseq_U2802:*
| K_ceneseq_U2802:*
| K_ceneseq_U2802:*
| K_SIDSI/gcgdata/geneseq_Geneseqn_embl_/NA1981_DAT:*
| K_SIDSI/gcgdata/geneseq_Geneseqn_embl_/NA1981_DAT:*
| K_SIDSI/gcgdata/geneseq_Geneseqn_embl_/NA1981_DAT:*
| K_SIDSI/gcgdata/geneseq_Geneseqn_embl_/NA1984_DAT:*
| K_SIDSI/gcgdata/geneseq_Geneseqn_embl_/NA1984_DAT:*
| K_SIDSI/gcgdata/geneseq_Geneseqn_embl_/NA1987_DAT:*
| K_SIDSI/gcgdata/geneseqn_embl_/NA1987_DAT:*
| K_SIDSI/gcgdata/geneseq_Geneseqn_embl_/NA1987_DAT:*
                                                                                                                                                                                                                                                                                                                                  US-09-497-957-9
1440
1 GGGGACACTGGATCACCTAG......TCCTCAAAAGATTTCCCCA 1440
                                                                                                                                                                                                 352.95 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3472872
n 4.5
Compugen Ltd.
                                                                                                                                                                                              June 19, 2002, 06:38:35; Search time
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1736436 seqs, 858457221 residues
GenCore version
Copyright (c) 1993 - 2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                    - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IDENTITY_NUC Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N_Geneseq_032802:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Scoring table:
                                                                                                                                        OM nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Searched:
                                                                                                                                                                                                                                                                                                                                                                                                          Sequence:
                                                                                                                                                                                                        ou:
                                                                                                                                                                                                        Run
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

			Description	Hereditary haemoch	Human hereditary h	Haemochromatosis g	Human hereditary h	Human hereditary h	Human hereditary h	cDNA sequence enco	Human polynucleoti	Hereditary haemoch
SUMMARIES			ID	AAT96691	AAC68429	AAV23525	AAC68430	AAC68431	AAC68432	AAA96769	AA163897	AAT96690
			DB:	18	22	19	22	22	22	21	22	18
		Query	Length	1440	1440	2727	1440	1440	1440	2506	296	10825
	æ	Query	Match	100.0	100.0	100.0	6.66	6.66	8.66	84.7	38.8	22.3
			Score	1440	1440	1440	1438.4	1438.4	1436.8	1219	559.2	321
		Result	No.	-	2	m	4	5	9	7	8	6

hereditary hereditary hereditary hall bus of a hitary haemoch hereditary here	Human immune syste CDNA encoding chic HUMAN EST-derived HUMAN EST-derived HUMAN CRON CD-1.		3	
Human hered Genomic DNN Hereditary Human hered Human hered Hereditary Human hered Human hered	Human immun CDNA encodi CDNA encodi CDNA encodi CDNA encodi CDNS encodi CDNS encodi CDNA e	HLA-C HLA-C DNA en DNA en DNA en PHLA-B Human	mosis; mutation) Stitution" Stitution" I wariant)	
		3 3 5 5 MENTS		
AAC68425 AAC68426 AAA96794 AAV579034 AAC68427 AAC68428 AAX16055	ABL34141 ABL34143 ABL34143 ABL34143 AAA48671 AAA786071 AAA78669 AAA8669 AAA48669 AAA48669 AAA48666 AAA48666 AAA48666 AAA48666 AAA48666 AAA48664 AAB664 AAB664 AAB664 AAB664 AAB664 AAB664 AAB664 AAB664 AAB664 AAB664 AAB664	AAQ12177 AAQ30913 AAQ3090740 AAQ75973 AAH45555 ALIGNMENTS	gene cI metal aning; halifiers allifiers in lits in lits in alls and a subscripted substil	ı
222222222222222222222222222222222222222	74411111111111111111111111111111111111	23 23 23 16 22 22	ry) ry) cry) osis ge osis; r screen. n/oual: a a fc to e resul: i to e assoc Tyr s	1
10825 10825 12146 237326 10825 10825 517 517	8622 1022 1023 1023 1023 1023 1023 1023 10	1030 2034 2037 4965 1089	andard; CDNA; 1  (first entry) haemochromatosi by; prenatal scr ns. Location/Q 222.1268 /*tag= a 408 /*tag= q /*tag= h /note= "A 1066 /*tag= i /*tag= h /note= "A	
	20011111111111111111111111111111111111		.anda. 3 (f haem haem ns.	
32 32 32 319. 319. 28	10000000000000000000000000000000000000	141. 141. 141. 1339.	AT96691 AT96691; 4-APR-19 ereditar ereditar ene ther como sapi cey ins nutation nutation	
0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0 1202222222222222222222222222222222222	44444	1961	XX

~

```
This cDNA clone, designated cDNA24, is derived from human gene whose mutated form is associated with hereditary haemochromatosis (HH). It was obtained from a directionally cloned plasmid-based cDNA1 library following identification of the HH locus in the HLA region of chromosome 6. A single mutation (24d1) in the HH gene a ppears responsible for the majority of HH disease. This comprises a G to A substitution that is present in 86% of affected chromosomes and in 4% of unaffected chromosomes. It results in a critical disulphide bridge important for secondary structure. The Cillowing are claimed: a 10825 bp genomic DNA sequence (I) (see AAT96690), the H437 bp cDNA sequence (Ia) and their 24d1, 24d2 and contraints; a cloning or expression vector; host cells; a peptide product chosen from the HH gene product, its variants (24d1, 24d2 and 24d7), or a peptide of at least 56 amino acid residues of these; an antibody produced using the peptide; a method crestion and aladay, or a peptide of at least 56 amino acid residues of these; an antibody produced using the peptide; a method crestion of injury due to oxidative process in vivo or mitigation of injury due to oxidative process in vivo or mitigation of injury due to oxidative process in vivo or mitigation of injury due to oxidative process in vivo or the mitigation of injury due to oxidative process in vivo or mitigation of injury due to oxidative process in vivo or mitigation of injury due to oxidative process in vivo or the mitigation of injury due to oxidative process in vivo or the mitigation of injury due to oxidative process or vivo or creating potential product of a nucleic acid sequence as above; and oligonucleotides or pairs of oligonucleotide directed against a transcriptional product of a nucleic acid sequence as above; and oligonucleotides from the HH benezygotes, to HH disease, including gene therapy, cor the HH gene. The HH gene. The HH genes of HH disease, including gene therapy, the process in and therapy of HH disease, and oligonucleotide directed agai
                                                                                                                                                                                                                                                                                                                                                                                                                         Hereditary haemochromatosis gene and variants - useful for diagnosis and treatment of hereditary haemochromatosis disease
                                                                                                                                                                                                                                                                                          Thomas WJ;
                                                                                                                                                                                                                                                                                          Ruddy D,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Disclosure; Fig 4; 115pp; English.
                                                                                                                                                                                                                                                                                       Gnirke A,
                                                                                                                                                                                                                                      (MERC-) MERCATOR GENETICS INC
                                                                                                                                         96US-0652265.
96US-0630912.
96US-0632673.
                                                                                               97WO-US06254
                                                                                                                                                                                                                                                                                       Drayna DT, Feder JN,
Tsuchihashi Z, Wolff
                                                                                                                                                                                                                                                                                                                                                       WPI; 1997-512743/47.
P-PSDB; AAW36499.
    WO9738137-A1
                                                                                             04-APR-1997;
                                                                                                                                                                                          16-APR-1996;
                                                                                                                                           23-MAY-1996;
                                                 16-OCT-1997
```

Sequence 1440 BP; 347 A; 355 C; 407 G; 331 T; 0 other;

ó; 61 ACTAAAGTICTGAAAGACCIGIIGCIIITCACCAGGAAGIITITACIGGGCAICTCCIGAG 120 Gaps 9 ; Length 1440; 0; Indels 18; DB 100.0%; Score 1440; 100.0%; Pred. No. 0; iive 0; Mismatches Best\_Local Similarity 100. Matches 1440; Conservative Query Match 121 g ò g ò

1080 360 420 480 ggataaccttggctgtaccccctggggaagagcagagatatacgtgccaggtggagcacc 1080 540 540 900 9 999 9 720 720 780 780 840 840 900 960 096 900 eggegetteteeteetgatgettttgeagaeegeggteetgeaggggegettgetgegtt CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG AAAATCACAACCACAGGAAGGAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGC aaaatcacaacaacagcaaggagtcccacaccctgcaggtcatcctgggctgtgaaatgc TGGAGTGGGAAAGCCACAAGATTCGGGCCAGGCAGAGACAGGGCCTACCTGGAGAGGACT tggagtgggaaaggcacaagattcgggccaggcagaacagggcctacctggagagggact TTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAGAGTCGCC GIGIGGAGCCCCGAACTCCAIGGGTITCCAGIAGAATTTCAAGCCAGAIGIGGCTGCAGC AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGGCAGGACCACCTTG AATTCTGCCCTGACACACTGGATTGGAGAGCAGAACCCAGGGCCTGGCCCACCAAGC GCCCTGCACAGCTGCAGCTGGAGCTGGGGGAGAGGTGTTTTGGACCAACAAGTGC CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG CCTTGAACTACTACCCCCCAGAACATCACCATGAAGTGGCCTGAAGGATAAGCAGCCAATGG GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTGCCAGGTGGAGCACC CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA TIGGAGICATCAGIGGAATIGCIGITITITIGICGICATCTIGITCATIGGAATITIGITCA 241 301 301 361 481 541 541 661 241 361 421 421 601 181 481 601 199 781 1021 1021 1081 1081 1141 1141 1201 721 721 781 841 841 901 901 961 1201 8 q à q οy g δ Db ŏ q ŏ g ŏ Q g ò δ qq οy g δ g Ω ò ò ŏ g ò

300 300 360 360 420 480 480

```
atgccaaggagttcgaacctaaagacgtattgcccaatggggatgggacctaccagggct
  CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGGCCCCCAAAAG
                                                                 ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACTACCAGGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGATATACGTGCCAGGTGGAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ggataaccttggctgtaccccctggggaagagcagagatatacgtgccaggtggagcacc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTGAGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1081 caggectggatcagececteattgtgatetgggageeeteaeegtetggeaeeetagtea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ttggagtcatcagtggaattgctgtttttgtcgtcatcttgttcattggaattttgttca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1201 TAATATTAAGGAAGAGCAGGGTTCAAGAGGAGCCATGGGGGCACTACGTCTTAGCTGAAC
                            cctaggcaatagctgtagggtgacttctggagccatccccgtttccccgccccaaaag
                                                                                                       CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCGTT
                                                                                                                              241 cggcgcttctcctcctgatgcttttgcagaccgcggtcctgcagggggcgcttgctgcgtt
                                                                                                                                                        301 CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                           TTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAGAGTCGCC
                                                                                                                                                                                                                                                             GTGTGGAGCCCCGAACTCCCATGGGTTTCCAGTAGAATTTTCAAGCCAGATGTGGCTGCAGC
                                                                                                                                                                                                                                                                                                                TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                                                                                                                                                                                                                                  AAAATCACAACCACAGCAAGGAGTCCCACACCCTGCAGGTCATCCTGGGCTGTAAAATGC
                                                                                                                                                                                                                                                                                                                                                                                              541 aaaatcacaaccagcaaggagtcccacaccctgcaggtcatcctgggctgtgaaatgc
                                                                                                                                                                                                                                                                                                                                                                                                                        AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGGCAGGACCACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                aagaagacaacagtaccgagggctactggaagtacgggtatgagggcaggaccaccttg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AATTCTGCCCTGACACACTGGATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGGAGTGGGAAAGGCACAAGATTCGGGCCCAGGCAGAACAGGGCCTACCTGGAGAGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCCTGCACACAGCTGCAGCTTGCTGGAGCTGGGGAGGTGTTTTTGGACCAACAAGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTCCTTTGGTGAAGGTGACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTGTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCTTGAACTACTACCCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTGGAGTCATCAGGAATTGCTGTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCA
                                                   AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGGAAATGGGCCCGCGAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                    661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1021
                                                                                                                                                                                 301
                                                                                                                                                                                                           361
                                                                                                                                                                                                                                   361
                                                                                                                                                                                                                                                                                     421
                                                                                                                                                                                                                                                                                                                                          481
                                                                                                                                                                                                                                                                                                                                                                    541
                                                                                                                                                                                                                                                                                                                                                                                                                      601
                                                                                                                                                                                                                                                                                                                                                                                                                                               601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1141
  121
                         121
                                                   181
                                                                                                       241
                                                                                                                                                                                                                                                            421
                                                                                                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         qq
                     g
                                                   ă
                                                                        g
                                                                                                      Qλ
                                                                                                                             Q
                                                                                                                                                       οy
                                                                                                                                                                                g
                                                                                                                                                                                                           δy
                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                           QΥ
                                                                                                                                                                                                                                                                                     d
                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Óλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                products. These proteins may be used to treat a patient diagnosed as having human hemochromatosis disease. It is also useful as a metal chelation agent or as a T-cell differentiation factor, and for alleviating iron overload. They may also be used in protein replacement therapy for individuals having a defective human hemochromatosis gene.
                                                                                                     1440
                                                                                                                 GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG 1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Wolff RK;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACTAAAGTTCTGAAAGACCTGTTGCTTTTCACCAGGAAGTTTTACTGGGCATCTCCTGAG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          useful
metal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1321 agggagtgcatttatgagctcttcatgtttcaggagagagttgaacctaaacatagaaat
            AGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAACATAGAAT
                                                                                                     TGCCTGACGAACTCCTTGATTTTAGCCTTCTCTGTTCATTTCCTCAAAAAAATTTCCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       invention relates to hereditary hemochromatosis gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ๙
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 1440;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          or polypeptides, patient, and as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Tsuchihashi Z,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .
0
                                                                                                                                                                                                                                                                                                 HH; hereditary hemochromatosis; chelation agent; T-cell differentiation factor; iron overload; ss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 G; 331 T; 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       new nereditary hemochromatosis gene products
for treating hereditary hemochromatosis in a
chelation agent alleviating iron overload -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100.0%; Score 1440;
100.0%; Pred. No. 0;
live 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ruddy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BP; 347 A; 355 C; 407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Disclosure; Fig 4; 108pp; English
                                                                                                                                                                                                                                                                        Human hereditary hemochromatosis
                                                                                                                                                                                             ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gnirke
                                                                                                                                                                                                                                                                                                                                                                                                                                            96US-0630912.
96US-0632673.
96US-0652265.
                                                                                                                                                                                             DNA; 1440
                                                                                                                                                                                                                                                                                                                                                                                                                     97US-0834497
                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Drayna DT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (BIRA ) BIO-RAD LAB INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 2001-006341/01
                                                                                                                                                                                            AAC68429 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Seguence 1440
                                                                                                                                                                                                                                                                                                                                          Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                    04-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                            04-APR-1996;
16-APR-1996;
23-MAY-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        present
                                                                                                                                                                                                                                                                                                                                                                 US6140305-A
                                                                                                                                                                                                                                              21-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                           31-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Thomas WJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Sim
Matches 1440;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Feder
1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                  1321
                                                                                                     1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The
                                                                        g
                                                                                                                             g
                                                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                     õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
ò
                                                   õ
```

540

900

900

660

780 780 840 900 900

```
This sequence represents the haemochromatosis (HC) gene. Mutations in this sequence are detected using the method of the invention. The method is for identifying an individual with hereditary haemochromatosis (HH) or offspring, comprising isolating a biological sample and amplifying a predisposition to develop HH or to genetically pass on HH to an offspring, comprising isolating a biological sample and amplifying a region of genomic DNA in the biological sample encompassing all or part of the DNA between markers D65265 and D65276, and detecting at least one homozygous or heterozygous mutation in a nucleotide within the region. The method can also be used for identifying an individual with an autosomal recessive disorder (ARD) or predisposition to develop and/or genetically pass on an ARD to an offspring, comprises isolating a biological sample from the individual and screening genomic DNA in the sample for the presence of a homozygous or heterozygous mutation in a companial function of which, is required to prevent progression of the companial function of which, is required to prevent progression of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            the disorder. The method(s) can be used to identify individuals that are homozygous or heterozygous (carriers) for the mutation causing the ARD. Especially the method is used to diagnose HH or predisposition to HH by detecting a Cys287yr substitution. Individuals homozygous for this mutation have HH and heterozygotes are potential carriers of the
                                                                                                                          1380
                  taatattaagggaagaggcagggttcaagaggagccatgggggcactacgtcttagctgaac 1260
                                                                                                                                                                                                                                    1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene; HH identification; diagnosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Detection of autosomal recessive disorder – particularly hereditary haemochromatosis, by detecting a mutation in the HC gene
                                                                    1321 AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGGAGTTGAACCTAAACATAGAAAT
                                                                                                                                                                                             1381 TGCCTGACGAACTCCTTGATTTTAGCCTTCTGTTCATTTCCTCAAAAAGATTTCCCCA
                                                   GTGAGTGACACCCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG
Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Powell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (COUN-) COUNCIL QUEENSLAND INST MEDICAL RES.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EG,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Jazwinska
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Disclosure; Page -; 32pp; English.
                                                                                                                                                                                                                                                                                                                       ВÞ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                autosomal recessive disorder; ss
                                                                                                                                                                                                                                                                                                                                                                                                                                                               H
                                                                                                                                                                                                                                                                                                                      mRNA; 2727
                                                                                                                                                                                                                                                                                                                                                                                                                                                             haemochromatosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         96AU-0002083
96AU-0001849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           97WO-AU00539
                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cullen LM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Detection of autosomal
                                                                                                                                                                                                                                                                                                                                                                                                                          Haemochromatosis gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WPI; 1998-179064/16
                                                                                                                                                                                                                                                                                                                      AAV23525 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapiens,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WO9807884-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         22-AUG-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           03-SEP-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           23-AUG-1996;
                                                                                                                                                                                                                                                                                                                                                                                        10-JUL-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Busfield F,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      26-FEB-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hereditary
                                                                                                                                                                                                                                                                                                                                                       AAV23525;
                1201
                                                  1261
                                                                                                                                                                                                                                1381
                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                        g
                                                                                                                                                                                                                              셤
              g
                                                  ò
                                                                                   g
                                                                                                                    ò
                                                                                                                                                                                             à
```

Sequence 2727 BP; 702 A; 606 C; 660 G; 759 T; 0 other;

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   180
                                                                                                                       180
                                                                                                                                       240
                                                                                                                                                        240
                                                                                                                                                                                                                                                                               480
                                                                                                                                                                                                                                                                                                480
                                                                                                                                                                                                                                                                                                                 540
                                                                                                                                                                                                                                                                                                                                                 900
                                                                                     120
                                                                                                                                                                         300
                                                                                                                                                                                          300
                                                                                                                                                                                                           360
                                                                                                                                                                                                                            360
                                                                                                                                                                                                                                             420
                                                                                                                                                                                                                                                               420
                                                                                                                                                                                                                                                                                                                                540
                                                                                                                                                                                                                                                                                                                                                                   900
                                                                                                                                                                                                                                                                                                                                                                                     099
                                                                                                                                                                                                                                                                                                                                                                                                     099
                                                                                                                                                                                                                                                                                                                                                                                                                       720
                                                                                                                                                                                                                                                                                                                                                                                                                                       720
                                                                                                                                                                                                                                                                                                                                                                                                                                                         780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 960
                                                                    120
                  Gaps
                                 9
                                                  9
                                           ACTAAAGTTCTGAAAGACCTGTTGCTTTTCACCAGGAAGTTTTACTGGGCATCTCCTGAG
                                                                                       actaaagttctgaaagacctgttgcttttcaccaggaagttttactgggcatctcctgag
                                                                                                      CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGGCCCCCAAAAG
                                                                                                                                         AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCCAGGC
                                                                                                                                                  TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                                                                                                                                                                                          AAAATCACAACCACAGGAAGGAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                                                                                                                                                                                                                                                                                     aaaatcacaaccacaacaaggagtcccacaccctgcaggtcatcctgggctgtgaaatgc
                                                                                                                                                                                                                                                                                                                                                                                     AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGGCAGGACCACCTTG
                                                                                                                                                                                                                                                                                                                                                                                              AATTCTGCCCTGACACACTGGATTGGAGGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                         aattctgccctgacacactggattggagagcagcagcagaacccagggcctggcccaccaagc
                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCCTGCACAGCTGCAGCTGCTGGAGCTGGGGGAGGTGTTTTGGACCAACAAGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTCCTTTGGTGAAGGTGACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCTTGAACTACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGTGG
                                                                                                                                                                          CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGGCGCTTGCTGCGTT
                                                                                                                                                                                                            CACACTCTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                               GTGTGGAGCCCCGGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAGAGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 2727;
                 ö
                 Indels
19;
                 ;
0
DB
Score 1440;
Pred. No. 0;
                 Mismatches
                 ;
0
100.0%;
                 Conservative
         Similarity
Query Match
Best Local Simi
Matches 1440;
                                                                                                                                        181
                                                                                                                                                                                           241
                                                                                                                                                                                                                                                                                                                                  481
                                                                                     61
                                                                                                      121
                                                                                                                        121
                                                                                                                                                         181
                                                                                                                                                                          241
                                                                                                                                                                                                           301
                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                             361
                                                                                                                                                                                                                                                               361
                                                                                                                                                                                                                                                                                421
                                                                                                                                                                                                                                                                                                 421
                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                                                                                                                                   541
                                                                                                                                                                                                                                                                                                                                                                    541
                                                                                                                                                                                                                                                                                                                                                                                     601
                                                                                                                                                                                                                                                                                                                                                                                                      601
                                                                                                                                                                                                                                                                                                                                                                                                                       661
                                                                                                                                                                                                                                                                                                                                                                                                                                        661
                                                                                                                                                                                                                                                                                                                                                                                                                                                         721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     961
                                                  원
                                                                     δ
                                                                                     셤
                                                                                                                      Q
                                                                                                                                                       g
                                                                                                                                                                         ò
                                                                                                                                                                                           g
                                                                                                                                                                                                                          q
                                                                                                                                                                                                                                             δy
                                                                                                                                                                                                                                                               d
                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                     δλ
                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                pp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Dp
                                                                                                      δ
                                                                                                                                        ò
                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                       ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                        òγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
```

```
therapy
                                                                                                                                                                                                        241
                                                                                                                                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                                                                            541
                                                                                                                                                                                                                                                                                                                                                                                                                                                      721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 901
                                                                                                61
                                                                                                              61
                                                                                                                              121
                                                                                                                                            121
                                                                                                                                                           181
                                                                                                                                                                          181
                                                                                                                                                                                         241
                                                                                                                                                                                                                        301
                                                                                                                                                                                                                                     301
                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                    421
                                                                                                                                                                                                                                                                                                 421
                                                                                                                                                                                                                                                                                                                                               541
                                                                                                                                                                                                                                                                                                                                                                           601
                                                                                                                                                                                                                                                                                                                                                                                           601
                                                                                                                                                                                                                                                                                                                                                                                                           661
                                                                                                                                                                                                                                                                                                                                                                                                                        661
                                                                                                                                                                                                                                                                                                                                                                                                                                       721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                901
                                                                                                              g
                                                                                                                                                                          a
                                                                                                                                                                                                       ρp
                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                   ΩD
                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                           οy
                                                                                                                                                                                                                                                                                                                                                                                          Db
                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
SXS
                                                                                g
                                                                                               ò
                                                                                                                              δŽ
                                                                                                                                            g
                                                                                                                                                           Qγ
                                                                                                                                                                                         ò
                                                                                                                                                                                                                        QY
                                                                                                                                                                                                                                                     Qγ
                                                                                                                                                                                                                                                                                   δŽ
                                                                                                                                                                                                                                                                                                                Qγ
                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The present invention relates to hereditary hemochromatosis gene products. These proteins may be used to treat a patient diagnosed as having human hemochromatosis disease. It is also useful as a metal chelation agent or as a T-cell differentiation factor, and for alleviating iron overload. They may also be used in protein replacement
              1140
                                                                                1200
                                                                                                       TTGGAGTCATCAGTGGAATTGCTGTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCA 1200
                                                                                                TAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGCCACTACGTCTTAGCTGAAC 1260
                                                                                                                              GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG 1320
                                                                                                                                             1320
                                                                                                                                                                                                                                                                                                                                                                                                                                        RK;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              nseful
                                                                                                                                                                                                                                                                                                                                                                                                                                        Wolff
                                                                                                                                     CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA
                                            GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTGCCAGGTGGAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            New hereditary hemochromatosis gene products or polypeptides, u
for treating hereditary hemochromatosis in a patient, and as a
chelation agent alleviating iron overload -
                                                                                                                                                                                                                                                                                                                                                                                                                                        Ζ,
                                                                                                                                                                                                                                                                                                                                                                                                                                        Tsuchihashi
                                                                                                                                                                                                                                                                                            mutation cDNA
                                                                                                                                                                                                                                                                                                         hemochromatosis; chelation agent; itiation factor; iron overload; ss
                                                                                                                                                                                                                                                                                                                                                                                                                                        Ď,
                                                                                                                                                                                                                                                                                                                                                                                                                                         Ruddy
                                                                                                                                                                                                                                                                                          Human hereditary hemochromatosis 24d1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Disclosure; Fig 4; 108pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                         Ą
                                                                                                                                                                                                                                              BP
                                                                                                                                                                                                                                                                                                        HH; hereditary hemochromatosis;
T-cell differentiation factor;
                                                                                                                                                                                                                                                                                                                                                                                                                                         Gnirke
                                                                                                                                                                                                                                              1440
                                                                                                                                                                                                                                                                                                                                                                                          96US-0630912.
96US-0632673.
96US-0652265.
                                                                                                                                                                                                                                                                                                                                                                            97US-0834497
                                                                                                                                                                                                                                                                            entry)
                                                                                                                                                                                                                                              DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                         (BIRA ) BIO-RAD LAB INC
                                                                                                                                                                                                                                                                                                                                                                                                                                        DT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 2001-006341/01.
                                                                                                                                                                                                                                                                           (first
                                                                                                                                                                                                                                                                                                                                                                                                                                         Drayna
                                                                                                                                                                                                                                              AAC68430 standard;
                                                                                                                                                                                                                                                                                                                                                                                          04-APR-1996;
16-APR-1996;
23-MAY-1996;
                                                                                                                                                                                                                                                                                                                                sapiens
                                                                                                                                                                                                                                                                                                                                                                           04-APR-1997;
                                                                                                                                                                                                                                                                                                                                              US6140305-A
                                                                                                                                                                                                                                                                           21-FEB-2001
                                                                                                                                                                                                                                                                                                                                                             31-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                        WJ,
                                                                                                                                                                                                                                                             AAC68430;
                                                                                                                                                                                                                                                                                                                                                                                                                                         Thomas
                                                                                                                                                                                                                                                                                                                                                                                                                                                Feder
                                                                                                                                           1261
                                                                                                                                                                                                         1381
                                                                                                                                                                                                                                                                                                                                Ношо
      1021
                     1021
                                   1081
                                                  1081
                                                                 1141
                                                                                1141
                                                                                               1201
                                                                                                              1201
                                                                                                                              1261
                                                                                                                                                            1321
                                                                                                                                                                          1321
                                                                                                                                                                                         1381
                                                                                                                                                                                                                                     AAC68430
                                                                                                                                                                                                                               RESULT
                                               g
                                                                            임
                                                                                            ŏ
                                                                                                             g
                                                                                                                             Qγ
                                                                                                                                         qq
                                                                                                                                                           δ
                                                                                                                                                                         οp
                                                                                                                                                                                         ò
                                                                                                                                                                                                       g
                                                                                                                                                                                                                                              à
                    g
                                                                δy
                                   ò
```

```
240
                                                                                                                                                                                                                                                                                                       240
                                                                                                                                                                                                                                                                                                                                   300
                                                                                                                                                                                                                                                                                                                                                          300
                                                                                                                                                                                                                                                                                                                                                                                      360
                                                                                                                                                                                                                                                                                                                                                                                                               360
                                                                                                                                                                                                                                                                                                                                                                                                                                         420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    096
                                                                                                                                                                     120
                                                                                                                                                                                               120
                                                                                                                                                                                                                         180
                                                                                                                                                                                                                                                  180
                                                                                          Gaps
                                                                                                                 9
                                                                                                                                         9
                                                                                                                                                                                                                                                                                                                                               AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGGCGGCAGGACCACTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AATTCTGCCCTGACACACTGGATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tggagtgggaaaggcacaagattcgggccaggcagaacagggcctacctggagagggact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCTTGAACTACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACTAAAGTTCTGAAAGACCTGTTGCTTTTCACCAGGAAGTTTTACTGGGCATCTCCTGAG
                                                                                                                                                                                    CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCCAAAAG
                                                                                                                                                                                                                                      AAGCGGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCAGGC
                                                                                                                                                                                                                                                                                                        aagcggagatttaacggggacgtgcggccagagctggggaaatgggcccgcgagccaggc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAAATCACAACCACAGGAAGGAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCCTGCACAGCTGCAGCTGCTGGAGCTGGGGAGAGGTGTTTTGGACCACAACAAGTGC
                                                                                                                                                                                                                                                                                                                                 CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCGTT
                                                                                                                                                                                                                                                                                                                                                                                       CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                           TTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAGAGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GIGIGGAGCCCCGAACTCCAIGGGIITCCAGIAGAAITICAAGCCAGAIGIGGCTGCAGC
human hemochromatosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              22; Length 1440;
                          other;
                                                                                       1;
                        0
                                                               BB
                        .,
T
                                                              99.9%; Score 1438.4;
99.9%; Pred. No. 0;
a defective
                                                                            Pred. No. 0;
0; Mismatches
                       348 A; 355 C; 406 G; 331
individuals having
                                                                                          Conservative
                                                                            Best_Local Similarity
Matches 1439; Conserv
                       Sequence 1440 BP;
for
                                                               Query Match
```

```
301
                                                                                                                                                                                                                                                                                   361
                                                                                                                                                                                                                                                                                                                                 421
                                                                                                                                                                                                                                                                                                                                                               481
                                                                                                                                                                                                                                                                                                                                                                                                               601
                                                                                                                                                                                                                                                                                                                                                                                                                                             661
                                                                                                                                                                                                                                                                                                                                                                                                                                                            661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        901
  8 X 8 8 8 8 8
                                                                                                          g
                                                                                                                                         g
                                                                                                                                                                       g
                                                                                                                                                                                                      a
                                                                                                                                                                                                                                    Сp
                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                  Db
                                                                                                                           ò
                                                                                                                                                         ò
                                                                                                                                                                                        οy
                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                    δy
                                                                                                                                                                                                                                                                                   \delta
                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                                pp
                                                                                                                                                                                                                                                                                                                                                 ÓΥ
                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                               δy
                                                                                                                                                                                                                                                                                                                                                                                              qq
                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                           qq
                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                           qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                           1260
                                1080
                                                                                             1200
                                                                                                           1200
                                                                                                                                          1260
                                                                                                                                                         1320
                                                                                                                                                                                     RK;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                New hereditary hemochromatosis gene products or polypeptides, useful for treating hereditary hemochromatosis in a patient, and as a metal chelation agent alleviating iron overload .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The present invention relates to hereditary hemochromatosis gene products, These proteins may be used to treat a patient diagnosed as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Wolff
                                                            CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA
                                                                                                    1381 IGCCIGACGAACTCCTIGATITITAGCCTICTCTGTTCATITCCTCAAAAAGATTTCCCCA
ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT
         1021 ggataaccttggctgtacccctggggaagagcagagatatacgtaccaggtggagcacc
                                                                                           TTGGAGTCATCAGTGGAATTGCTGTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCA
                                                                                                                           TAATATTAAGGAAGACCAGGGTTCAAGAGGAGCCATGGGGCACTACGTCTTAGCTGAAC
                                                                                                                                                        GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG
                              GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTGCCAGGTGGAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Tsuchihashi Z,
                                                                                                                                                                                                                                                                                                                         mutation cDNA
                                                                                                                                                                                                                                                                                                                                        HH; hereditary hemochromatosis; chelation agent; T-cell differentiation factor; iron overload; ss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ruddy
                                                                                                                                                                                                                                                                                                                         24d2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ą,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Disclosure; Fig 4; 108pp; English.
                                                                                                                                                                                                                                                                                                                         hereditary hemochromatosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gnirke
                                                                                                                                                                                                                                                                                                                                                                                                                           96US-0630912.
96US-0632673.
96US-0652265.
                                                                                                                                                                                                                                                                                                                                                                                                             97US-0834497
                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                           (BIRA ) BIO-RAD LAB INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Drayna DT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WPI; 2001-006341/01
                                                                                                                                                                                                                                                                          AAC68431 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                           04-APR-1996;
16-APR-1996;
23-MAY-1996;
                                                                                                                                                                                                                                                                                                                                                               Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                             04-APR-1997;
                                                                                                                                                                                                                                                                                                         21-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                             31-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Thomas WJ,
                                                                                                                                                                                                                                                                                         AAC68431;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Feder
                                                                            1081
                                                                                                         1141
                                                                                                                          1201
                                                             1081
                                                                                                                                         1201
961
                              1021
                                                                                           1141
                                                                                                                                                        1261
                                                                                                                                                                                                                                    1381
                                                                                                                                                                                                                                                          RESULT
AAC68431
à
              ద
                                          셤
                                                           9
9
                                                                                      ò
                                                                                                      q
                                                                                                                        ò
                                                                                                                                    g
                                                                                                                                                   ò
                                                                                                                                                                   g
                                                                                                                                                                                     ò
                                                                                                                                                                                                  g
                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                          ò
```

```
having human hemochromatosis disease. It is also useful as a metal chelation agent or as a T-cell differentiation factor, and for alleviating iron overload. They may also be used in protein replacement therapy for individuals having a defective human hemochromatosis gene.
                                                                                                                                                                                                                                                                                                                                                                         240
                                                                                                                                                                                                                                                  120
                                                                                                                                                                                                                                                                                120
                                                                                                                                                                                                                                                                                                             180
                                                                                                                                                                                                                                                                                                                                          180
                                                                                                                                                                                                                                                                                                                                                                                                       240
                                                                                                                                                                                                                                                                                                                                                                                                                                      300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           aattetgeeetgacacactggattggagagcagcagaacecagggeetggeecaceaage 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCTTGAACTACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCAATGG 960
                                                                                                                                                         Gaps
                                                                                                                                                                                                                   9
                                                                                                                                                                                                                  actaaagttctgaaagacctgttgcttttcaccaggaagttttactgggcatctcctgag
                                                                                                                                                                                                                                                                                                                               ACTAAAGTTCTGAAAGACCTGTTGCTTTTCACCAGGAAGTTTTACTGGGCATCTCCTGAG
                                                                                                                                                                                                                                                                                                               CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCCAAAAG
                                                                                                                                                                                                                                                                                                                                                                           AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCCAGGC
                                                                                                                                                                                                                                                                                                                                                                                          GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAAATCACAACCACAGGAAGTCCCACACCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGGCAGGACCACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AATTCTGCCCTGACACACACGGATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACCAACAACAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tggagtgggaaaggcacaagattcgggccaggcagaacagggcctacctggaagagggact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAGAGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGGAGTGGGAAAAGGCACAAGATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ctcctttggtgaaggtgacacatcatgtgacctcttcagtgaccactctacggtgtcggg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCCTGCACAGCTGCAGCAGTTGCTGGAGCTGGGGGAGAGGTGTTTTGGACCAACAAGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            22; Length 1440;
                                                                                                                                                         Indels
                                                                              T; 0 other;
                                                                                                                                                       1;
                                                                                                                           B
                                                                                                                      Score 1438.4;
Pred. No. 0;
0; Mismatches
                                                                              Sequence 1440 BP; 347 A; 354 C; 408 G; 331
                                                                                                                                                       ,
0
                                                                                                                        Query Match
Best Local Similarity 99.9%;
Matches 1439; Conservative
                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    841
```

```
1200
                                                                                                                                                                                                 1260
                                                                                                                                                        1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RK;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           New hereditary hemochromatosis gene products or polypeptides, useful for treating hereditary hemochromatosis in a patient, and as a metal chelation agent alleviating iron overload -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Wolff
                                                                                                                                                                                                            TTGGAGTCATCAGTGGAATTGCTGTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCA
                                                                                                                                                                    GTGAGTGACACGCAGCCTGCAGCTCACTGTGGGAAGGAGGAGACAAAACTAGAGACTCAAAG
                                                                                                                                                                                                                                                                                  AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAAACATAGAAAT
                                                                                                                                                                                                                                                                                                                         TGCCTGACGAACTCCTTGATTTTAGCCTTCTCTTGTTCCTCAAAAAAATTTCCCCCA
                                                                                             ggataaccttggctgtaccccctggggaagagcagagatatacgtgccaggtggagcacc
                                                                                                                                                                                                 TAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGCACTACGTCTTAGCTGAAC
                                                                                                                                                                                                                                                              gtgagtgacacgcagcctgcagactcactgtgggaaggagacaaaactagagactcaaag
                                           CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA
GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTGCCAGGTGGAGCACC
                                ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT
                                                                                   Tsuchihashi Z,
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Human hereditary hemochromatosis 24d1/2 mutation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HH; hereditary hemochromatosis; chelation agent; T-cell differentiation factor; iron overload; ss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ď,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               hemochromatosis; chelation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ruddy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           À,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4; 108pp; English
                                                                                                                                                                                                                                                                                                                                                                                                 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gnirke
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            96US-0630912.
96US-0632673.
96US-0652265.
                                                                                                                                                                                                                                                                                                                                                                                                 DNA; 1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           97US-0834497
                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (BIRA ) BIO-RAD LAB INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Drayna DT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 2001-006341/01
                                                                                                                                                                                                                                                                                                                                                                                                 AAC68432 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Disclosure; Fig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           04-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US6140305-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               04-APR-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   23-MAY-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                        21-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      31-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         L6-APR-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Thomas WJ,
                                                                                                                                                                                                                                                                                                                                                                                                                  AAC68432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Feder
                                                                                                                                                                                                                                                                                                                                                                            φ
                                                                                                                                                                                                                                                                                                     1321
                                                                                                                                                                                                                                                                                                                          1381
                                                                                                                                                                               1141
                                                                                                                                                                                                                                                                                                                                               1381
                                                                                            1021
                                                                                                                                     1081
                                                                                                                                                                                                   1201
                                                                                                                                                                                                                      1201
                                                                                                                                                                                                                                           1261
                                                                                                                                                                                                                                                              1261
                                                                                                                                                                                                                                                                                   1321
                                                                          1021
                                                                                                                  1081
                                                                                                                                                          1141
                                                                                                                                                                                                                                                                                                                                                                             RESULT
AAC68432
             901
                                 196
                                                      961
                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                             q
                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                              g
                                                                                           QC
                                                                                                                                     g
                                                                                                                                                          ò
                                                                                                                                                                                                   ò
                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                        QΥ
                                                                                                                                                                                                                                                                                   ŏ
                                                     g
                                                                          δλ
                                                                                                                  ò
                                 ŏ
```

```
iron overload. They may also be used in protein replacement individuals having a defective human hemochromatosis gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    900
                                                                                                                                                                                                                                                                                                                                                                                                                              480
                                                                                                                                                                                                                                                                                                                                                                                                                                                   540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 780
                                                                                                                                                                                                                                                        240
                                                                                                                                                                                                                                                                                              300
                                                                                                                                                                                                                                                                                                               300
                                                                                                                                                                                                                                                                                                                                                    360
                                                                                                                                                                                                                                                                                                                                                                        420
                                                                                                                                                                                                                                                                                                                                                                                          420
                                                                                                                                                                                                                                                                                                                                                                                                            480
                                                                                                                      Gaps
             products. These proteins may be used to treat a patient diagnosed as having human hemochromatosis disease. It is also useful as a metal chelation agent or as a T-cell differentiation factor, and for
                                                                                                                                        9
                                                                                                                                                           9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCCTGCACAGCTGCAGCAGTTGCTGGAGCTGGGGAAGGTGTTTTGGACCAACAAGTGC
                                                                                                                                                  TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGGGCAGGACCACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACTAAAGTTCTGAAAGACCTGTTGCTTTTCACCAGGAAGTTTTACTGGGCATCTCCTGAG
                                                                                                                                                                                                                             CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                                                                             tgagtcagagtctgaaagggtgggatcacatgttcactgttgacttctggactattatgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAAATCACAACCACAGCAAGGAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                                                                                                         CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCCGCCCCCAAAAG
                                                                                                                                                                                                                                                         AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCCAGGC
                                                                                                                                                                                                                                                                                             CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCGGTT
                                                                                                                                                                                                                                                                                                                                                                         TIGAAGCITIGGGCTACGIGGAIGACCAGCIGITCGIGIICIAIGAICAIGAGAGICGCC
                                                                                                                                                                                                                                                                                                                                                                                                             GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC
                                                                                                  Length 1440
                                                                                                                      ö
       hemochromatosis
                                                                                                                       Indels
                                                                         G; 331 T; 0 other;
                                                                                                    22;
                                                                                                                      5
                                                                                                     DB
        to hereditary
                                                                                                   Score 1436.8;
Pred. No. 0;
                                                                                                                      0; Mismatches
                                                                        Sequence 1440 BP; 348 A; 354 C; 407
        relates
                                                                                                   Query Match 99.8%;
Best Local Similarity 99.9%;
Matches 1438; Conservative
         invention
                                              alleviating
                                                       therapy for
                                                                                                                                                                                                                                                                                                                                                       301
                                                                                                                                                                                                                                                                                                                                                                           361
                                                                                                                                                                                                                                                                                                                                                                                             361
                                                                                                                                                                                                                                                                                                                                                                                                                421
                                                                                                                                                                                                                                                                                                                                                                                                                                 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       841
                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                 241
                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                                                                                                                     481
                                                                                                                                                                                 61
                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    а
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ор
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                 d
                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                               qq
                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                Qγ
                                                                                                                                                                                                                                                                                                               q
                                                                                                                                                                                                                                                                                                                                  δy
                                                                                                                                                                                                                                                                                                                                                                          Ω
*5555555 *8
                                                                                                                                           δ
                                                                                                                                                                                                 g
                                                                                                                                                                                                                      δy
                                                                                                                                                                                                                                                           ğ
                                                                                                                                                                                 Q
```

```
mutation
                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                 282
                                                                                                                                                                                                                                                                                                                                                                                            342
                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                       402
                                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           301
    ŏ
                                                                                                                                                                                                                                                                                                                                                    d
                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                             ద
                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                     "histocompatibility iron loading (HFE) protein"
                                           1020
                                                GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTGCCAGGTGGAGCACC 1080
                                                                           CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA 1140
                                                                                                              1140
                                                                                                                         TIGGAGICAICAGIGGAATIGCIGITITIGICGICAICTIGITCAIIGGAAITITGIICA 1200
                                                                                                                                                    TAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGCACTACGTCTTAGCTGAAC 1260
                                                                                                                                                           GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG 1320
                                                                                                                                                                                       1440
                                                                                                                                                                                                                                                                                                                           encoding a histocompatibility iron loading (HFE) protein.
                                                                                                                                         1200
                             960
ctcctttggtgaaggtgacacatcatgtgacctcttcagtgaccactctacggtgtcggg
                                                                                                     CCTTGAACTACCCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG
                                        961 ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT
                    AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAACATAGAAAT
                                                                                                                                                                                                                                     TGCCTGACGAACTCCTTGATTTTAGCCTTCTCTGTTCATTTCCTCAAAAGATTTCCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                then the
G93R"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      the
                                                                                                                                                                                                                                                                                                                                        Human; histocompatibility iron loading protein; HFE protein; major histocompatibility complex; non-classical class I gene chromosome 6p; iron disorder; haemochromatosis; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     then t
S65c"
                                                                                                                                                                                                                                                                                                                                                                                                                                         "if this base is mutated to G, then protein contains the mutation H63D"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         e
"if this base is mutated to C,
protein contains the mutation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     base is mutated to T, contains the mutation
                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
                                                                                                                                                                                                                                                                                      BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "if this by protein c
                                                                                                                                                                                                                                                                                   AAA96769 standard; cDNA; 2506
                                                                                                                                                                                                                                                                                                                                                                                                /product ".66
                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                    Ω
                                                                                                                                                                                                                                                                                                                                                                                                                    /*tag=
187
                                                                                                                                                                                                                                                                                                                                                                                         .1044
                                                                                                                                                                                                                                                                                                                                                                                               /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                             /*tag=
/note= '
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /*tag=
/note=
                                                                                                                                                                                                                                                                                                                                                                                                                                          /note-
                                                                                                                                                                                                                                                                                                                                                                                                                                   /*tag=
                                                                                                                                                                                                                                                                                                                            cDNA sequence
                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens
                                                                                                                                                                                                                                                                                                              19-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                             sig_peptide
                                                                                                                                                                                                                                                                                                 AAA96769;
                                                                                                                                                                                                                                                                                                                                                                                                                            mutation
                                                                                                                                                                                                                                                                                                                                                                                                                                                      mutation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mutation
841
                                                                                                                                      1141
                                                                                                           1081
             901
                           901
                                                                   1021
                                                                                1021
                                                                                              1081
                                                                                                                         1141
                                                                                                                                                    1201
                                                                                                                                                                 1201
                                                                                                                                                                               1261
                                                                                                                                                                                            1261
                                                                                                                                                                                                          1321
                                                                                                                                                                                                                       1321
                                                                                                                                                                                                                                     1381
                                                                                                                                                                                                                                                  1381
                                                                                                                                                                                                                                                                             AAA96769
                                                                                                                                                                                                                                                                                                                                                                                   Key
a
             ò
                          셤
                                      δ
                                                   qq
                                                                   ò
                                                                             g
                                                                                                       qq
                                                                                         ŏ
                                                                                                                      ŏ
                                                                                                                                   g
                                                                                                                                                  ò
                                                                                                                                                              g
                                                                                                                                                                          ò
                                                                                                                                                                                         g
                                                                                                                                                                                                          ò
                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                 g
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The present sequence encodes a human histocompatibility iron loading (HFE) protein. The HFE gene is a major histocompatibility (MHC) non-classical class I gene located on chromosome 6p. Mutations in the gene lead to iron disorders. The specification describes a method for diagnosing an iron disorder or a genetic susceptibility to develop the disorder in a mammal. The method comprises determining the presence of a mutation in exon 2 or an intron of a HFE gene or protein. The mutation is not a C to G missense mutation at nucleotide 187 of the sequence 18 not a C to G missense mutation at nucleotide 187 of the sequence mutation indicates the disorder or the genetic susceptibility to the disorder. The method is used to diagnose an iron disorder e.g. haemochromatosis, or a genetic susceptibility to develop it.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mutation
                     f
"if this base is mutated to C, then the
protein contains the mutation IlOST, which
is associated with an Iron overload disorder"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Diagnosing an iron disorder e.g. hemochromatosis or a genetic susceptibility to develop it, by determining the presence of a mutat in exon 2 or an intron of a histocompatibility iron loading nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         222 ATGGGCCCGCGAGCCAGGCCGGCGCTTCTCCTCTGATGCTTTTTGCAGACCGCGGTCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CAGGGGGCGCTTGCTGCACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GACCTTGGTCTTTCCTTTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TATGATCATGAGAGTCGCCGTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     582 ATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                522 GACTICTGGACTATTATGGAAAATCACAACCAGAAGGAGGTCCCACACCCTGCAGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 2506;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 2506 BP; 648 A; 552 C; 596 G; 710 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
0
                                                                                                                                                                                                                                                                                                                                                                        Barton JC;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 1219; 1
Pred. No. 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Disclosure; Page 2-3; 55pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               84.7%; Scc.
100.0%; Pre/
0; }
                                                                                                                                                                                                                                                                                                                                                                     Rothenberg BE, Sawada-Hirai R,
                                                                                                                                                                                                                                                                                                                       (BILL-) BILLUPS-ROTHENBERG INC
                                                                                                                                                                                                                                                                         99US-0277457.
                                                                                                                                                                                                                              24-MAR-2000; 2000WO-US07982.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches 1219; Conservative
314
/*tag=
/note=
                                                                                                                                                                                                                                                                                                                                                                                                            WPI; 2000-647244/62.
P-PSDB; AAB19149.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                    WO200058515-A1
                                                                                                                                                                                                                                                                            26-MAR-1999;
                                                                                                                                                                                  05-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local
```

```
Human; antiarthritic; antirheumatic; antiproliferative; vasotropic;
cerebroprotective; nootropic; neuroprotective; antibacterial; virucide;
fungicide; ophthalmological; cytostatic; immunosuppressive; nootropic;
                                                                                                                                                                                                                                                                                                                          1361
                                                                                                                                                                                                                                                                                                                                1061
                                                                                                                                                                                                                                          CCGTCTGGCACCCTAGTCATTGGAGTCATCATGGGAATTGCTGTTTTTGTCGTCATCTTG 1181
                                                                                                                                                                                                                                                                     TTCATTGGAATTTTGTTCATAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGG 1241
                                                                                                                                                                                                                                                                                                CACTACGICITAGCIGAACGIGAGIGACACGCAGCCIGCAGACTCACIGIGGGAAGGAGA 1301
                                                                                                                                                                                                               ACGTGCCAGGTGGAGCACCCAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCA 1121
                                                                                                                                                         aaggataagcagccaatggatgccaaggagttcgaacctaaagacgtattgcccaatggg 1001
                                                                                                                                       780
                                                                                                                                                                                                 840
                                                                                                                                                                                                                      cogtotogocaccotagicatiggagicatcagiggaatigcigittitigicgicatotig 960
                                                                                                                  099
                                                                                                                               941
                                                                                                     881
                                  480
                                               761
                                                             540
                                                                          821
       420
                     701
                                                                                                                                                                                                                                                                                                                           1302 CAAAACTAGAGACTCAAAGAGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGT
                                                                                                                                                                 GATGGGACCTACCAGGGCTGGATAACCTTGGCTGTACCCCCTGGGGAAGAGACAGATAT
                                                                                                                                                                                            gcctacctggagaggactgccctgcacagctgcagcagttgctggagctggggagaggt
                                                                                                      GITITIGGACCAACAAGTGCCTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTG
                                                                                                                               ACCACTCTACGGTGTGGGGCCTTGAACTACTACCCCCAGAACATCACCATGAAGTGGCTG
                           AGGGCCTGGCCCACCAAGCTGGAAAAGGCACAAGATTCGGGCCAGGCAGAACAGG
                                                                           GCCTACCTGGAGAGGGACTGCCTGCACAGCTGCAGCTTGCTGGAGGTGGGGGAGGGT
atcctgggctgtgaaatgcaagaagacaacagtaccgagggctactggaagtacgggtat
                     GATGGGCAGGACCACCTTGAATTCTGCCCTGACACACTGGATTGGAGGAGCAGCAGAACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Human polynucleotide SEQ ID NO 105.
                                                                                                                                                                                                                                                                                                                                                                                                                                  ВР
                                                                                                                                                                                                                                                                                                                                                                                CCTCAAAAGATTTCCCCA 1440
                                                                                                                                                                                                                                                                                                                                                                                              cctcaaaaagatttcccca 1219
                                                                                                                                                                                                                                                                                                                                                                                                                                 CDNA; 596
                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                  AAI63897 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              22-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                               AA163897;
                                                                                                                                                                                                                                                                                                                                                                                                                    œ
                                                                                                                                                                                                                                                                                                                                                                                  1422
                                                                                                                                                                                                                                                                                                                                                                                               1201
                                                                                                                                                                                                                                                                       1182
                                                                                                                                                                                                                                                                                                  1242
                                                                                                                                                                                                                                            1122
                                                                                                                                                                                                                                                                                    961
                                                                                                                                                            942
                                                                                                                                                                                      1002
                                                                                                                                                                                                    781
                                                                                                                                                                                                                  1062
                                                                                                                                                                                                                               841
                                                                                                                                                                                                                                                          901
                                                                                                                                 882
                                                                                                                                                                         721
                      642
                                                 702
                                                                            762
                                                                                         541
                                                                                                       822
                                                                                                                    601
                                                                                                                                              661
         361
                                   421
                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                           AA163897
                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                             d
                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                            q
                                                                                                                                                           δ
                                                                                                                                                                       Ω
                                                                                                                                                                                     δÿ
                                                                                                                                                                                                 qq
                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                          Ω
                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                δ
                                                              염
                                                                                        g
                                                                                                      ò
                                                                                                                   g
                                                                                                                                 ò
                                                                            ò
                                   g
                                                 δ
                       ò
```

```
neuroprotective; antiallergic; hepatotropic; antidiabetic; antinflammatory; antiulcer; vulnerary; anticonvulsant; antibacterial; antiparasitic; cardiant; gene therapy; cancer; immune disorder; cardiovascular disorder; neurological disease; infection; human; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2000US-0233063.
2000US-0233064.
2000US-0233065.
                                                                                                                                                                                                                                                                                                   200005-0190076.
200008-019123.
200008-0209467.
200008-0214886.
200008-0214886.
200008-0216647.
200008-0216880.
200008-0216880.
200008-021880.
200008-0218290.
200008-0218290.
200008-0228213.
200008-0228213.
200008-0228213.
200008-0228213.
200008-0228213.
200008-0228213.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2000US-0225270.
2000US-0225447.
2000US-0225755.
2000US-0225759.
2000US-0225759.
2000US-0226681.
2000US-0226868.
2000US-0226868.
2000US-0228828.
2000US-0228928.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2000US-0229344.
2000US-0229345.
2000US-0229509.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2000US-0231242.
2000US-0231243.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2000US-0231244.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20000S-0231414.
20000S-0232080.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2000US-0232081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2000US-0232398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2000US-0232399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2000US-0232400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2000US-0232401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2000US-0229513
2000US-0230437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2000US-0230438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2000US-0231413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2000US-0231968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2000US-0232397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2000US-0229343
                                                                                                                                                                                                                                    2000US-0180628
2000US-0184664
                                                                                                                                                                                                                                                                     2000US-0186350
2000US-0189874
                                                                                                                                                                                        2001WO-US01309
                                                                                                                                                                                                                      2000US-0179065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  18-AUG-2000; 2
22-AUG-2000; 2
22-AUG-2000; 2
23-AUG-2000; 2
23-AUG-2000; 2
33-AUG-2000; 2
01-SEP-2000; 2
01-SEP-2000; 2
05-SEP-2000; 2
06-SEP-2000; 2
06-SEP-2000; 2
06-SEP-2000; 2
06-SEP-2000; 2
06-SEP-2000; 2
06-SEP-2000; 2
08-SEP-2000; 2
                                                                                                                      WO200155308-A2
                                                                                                                                                                                                                                        04-FEB-2000; 2

24-FEB-2000; 2

02-MAR-2000; 2

16-MAR-2000; 2

17-MAR-2000; 2

18-APR-2000; 2

19-APR-2000; 2

19-JUN-2000; 2
                                                                                                                                                                                                                                                                                                                                                                                                                 07-701-2000;
11-701-2000;
14-701-2000;
26-701-2000;
26-701-2000;
14-ANG-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14-SEP-2000;
14-SEP-2000;
14-SEP-2000;
14-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                   28-JUN-2000;
30-JUN-2000;
07-JUL-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             14-SEP-2000;
14-SEP-2000;
                                                                                                                                                                                        17-JAN-2001;
                                                                                          Homo sapiens
                                                                                                                                                                                                                          31-JAN-2000;
                                                                                                                                                       02-AUG-2001
```

```
2000US-0239935.
2000US-0239937.
2000US-0240960.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2000US-0241221.
2000US-0241785.
2000US-0241786.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2000US-0241787.
2000US-0241808.
2000US-0241809.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2000US-0246474.
2000US-0246475.
2000US-0246476.
2000US-0246477.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20000S-0246525.
20000S-0246526.
20000S-0246527.
20000S-0246528.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2000us-0250160.
2000us-0250391.
2000us-0251030.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2000US-0251856.
2000US-0251868.
2000US-0251869.
2000US-0251989.
                                                 2000US-0234997.
2000US-0234998.
2000US-0235484.
2000US-0235834.
2000US-0235836.
                                                                                                                                                                                                                                                                                                   2000US-0236370.
2000US-0236802.
2000US-0237037.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2000US-0241826.
2000US-0244617.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            000US-0246609.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2000US-0249211.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2000US-0249214.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2000US-0249245.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2000US-0249264.
2000US-0249265.
                                                                                                                                                                                                                    20000S-0236367
20000S-0236368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2000US-0249299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2000US-0249300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2000US-0249217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      17-NOV-2000;
17-NOV-2000;
17-NOV-2000;
01-DEC-2000;
05-DEC-2000;
05-DEC-2000;
05-DEC-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                08-DEC-2000; 208-DEC-2000; 208
21-SEP-2000;
25-SEP-2000;
26-SEP-2000;
27-SEP-2000;
29-SEP-2000;
29-SEP-2000;
29-SEP-2000;
29-SEP-2000;
29-SEP-2000;
29-SEP-2000;
29-SEP-2000;
29-SEP-2000;
20-CCT-2000;
20-CC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   17-NOV-2000;
17-NOV-2000;
17-NOV-2000;
17-NOV-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  17-NOV-2000;
```

```
The invention relates to human polynucleotides (AAI63803-AAI64012) and the encoded proteins (AAM434497-AAM43660) useful for preventing, treating to rameliorating medical conditions e.g. by protein or gene therapy. The genes were isolated from a range of human tissues disclosed in the specification. The nucleic acids, proteins, antibodies and (ant)agonists are useful in the diagnosis, treatment and prevention of: (a) cancer, e.g. breast and ovarian cancer and other cancers of the adrenal gland, bone, bone marrow, breast, gastrointestinal tract, liver, lung, or urogenital; (b) immune disorders e.g. Addison's disease, allergies, autoimmune haemolytic anaemia, autoimmune thyroiditis, diabetes mellitus, crohn's disease, multiple sclerosis, rheumatoid arthritis and ulcerative colitis; (c) cardiovascular disorders such as myocardial isofanemias; od) wound healing; (e) neurological diseases e.g. cerebral anoxia and epilepsy; and (f) infectious diseases such as viral, bacterial, fungal and parasitic infections diseases such as viral, bacterial, fungal cand parasitic infections diseases such as viral, bacterial, fungal cand parasitic infections diseases such as viral, bacterial, fungal cand parasitic infections diseases such as viral, bacterial, fungal cand parasitic infections diseases such as viral, bacterial, fungal cand parasitic infections.

The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at fip, wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCCGCGAGCCAGGCCGCCTTCTCCTCCTGATGCTTTTGCAGACCGCGCTCCTGCAGG 285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 38.8%; Score 559.2; DB 22; Length 596; Best Local Similarity 97.8%; Pred. No. 3e-151; Matches 572; Conservative 4; Mismatches 8; Indels 1; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         166 CCCGCCCCCAAAAGAAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGG 225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                New isolated nucleic acids and polypeptides, useful for diagnosing, treating and/or preventing human diseases and disorders
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGCGCTTGCTGCGGTTCACACACTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATCATGAGAGTCGCCGTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          atcatgagagtcgccgtgtggagccccgaactccatgggtttccagtagaatttcaagcc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGATGTGGCTGCAGCTGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCTGGACTATTATGGAAAATCACAACCACAGCAAGGAGTCCCACACCCTGCAGGTCATCC
                                                                                                                                                                                                                                                                                                 Claim 1; SEQ ID NO 105; 664pp + Sequence Listing; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 596 BP; 133 A; 157 C; 175 G; 126 T; 5 other;
                                                                                                                              Ruben SM;
                                                                                   (HUMA-) HUMAN GENOME SCI INC
08-DEC-2000; 2000US-0251990.
11-DEC-2000; 2000US-0254097.
05-JAN-2001; 2001US-0259678.
                                                                                                                              Rosen CA, Barash SC,
                                                                                                                                                                       WPI; 2001-488781/53
                                                                                                                                                                                         P-PSDB; AAM43591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                466
    ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δŽ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ρy
```

ä

```
WPI; 1997-512743/47.
      P-PSDB; AAW36499
                                                                                                                                                                                                                                                                                                                                                        418
                                                                                                                                                                                                                                                                                                                                                                                                                   4002
                                                                                                                                                                                                                                                                                                                                                                               478
                                                                                                                                                                                                                                                                                                                                                                                                        538
                                                                                                                                                                                                                                                                                                                                                                                                                   q
                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                δλ
                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                        δλ
δ
      646 GGCAGGACCACCTTGAATTCTGCCCTGACACACTGGATTGGAGAGCAGCAGAACCCAGGG 705
             "G to A substitution (24d1 mutation associated with HH), results in Cys to
                                                                                                                                                                                                                                                                                                        A to T substitution (24d7 variant) results in Ser to Cys substitution"
                                                                                                                                                                                                                                                                                 C to G substitution (24d2 mutation) results in His to Asp substitution"
                                                                                                                       haemochromatosis; metal toxicity; diagnosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                 Thomas WJ;
                                    CCTGGCCCACCAAGCTGGAGTGGGAAAGGCACAAGATTCGGGCCA 750
                                                                                                                                                                                                                                                                                                                                                                                                                                 Ruddy D,
                                                                                                                           gene therapy; prenatal screening; human; ds
                                                                                                                                                                                                                                                                                                                                            Tyr substitution"
                                                                                                                                                                /*tag= a
/note= "contains introns"
                                                                                                                                                   Cocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                Drayna DT, Feder JN, Gnirke A,
Tsuchihashi Z, Wolff RK;
                                                                                                           Hereditary haemochromatosis gene.
                                                                       AAT96690 standard; DNA; 10825 BP
                                                                                                                                                                                                                                                                                                         "A to T
                                                                                                                                                                                                                                                                                                                                                                                                                    (MERC-) MERCATOR GENETICS INC.
                                                                                                                                                                                                                                                                                                                                                                                                  96US-0630912.
96US-0632673.
                                                                                                                                                                                                                                                                                                                                                                                97WO-US06254.
                                                                                                                                                                                                                                                                                                                                                                                            96US-0652265.
                                                                                                                                                                                      /number=_1
4026..4234
/*tag=_c
                                                                                                                                                                                                                                             /number= 4
6154..7106
                                                                                                                                                                                                                                                               /number= 5
                                                                                                                                                                                                                                 5882..6039
                                                                                                                                                                                                               ..5605
                                                                                              (first entry)
                                                                                                                                                                                                                      ō
                                                                                                                                                                                                                                        ø
                                                                                                                                                                           ..3761
                                                                                                                                                                                                          'number=
                                                                                                                                                                                                                           'number=
                                                                                                                                                                                                                                                                                                                           /*tag=
/note=
                                                                                                                                                                                  /*tag=
                                                                                                                                                                                                                                        /*tag=
                                                                                                                                                                                                                                                                            *tag=
                                                                                                                                                                                                                      *tag=
                                                                                                                                                                                                                                                                                 /note=
                                                                                                                                                                                                                                                                                                          /note=
                                                                                                                                                                                                                                                                                                    /*tag=
                                                                                                                                                                                                                                                          *tag=
                                                                                                                                                                                                                                                                                             3878
                                                                                                                                         Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                         W09738137-A1
                                                                                                                                                                                                                                                                                                                                                                                04-APR-1997;
                                                                                              14-APR-1998
                                                                                                                                                                                                                                                                                                                                                                                             23-MAY-1996;
                                                                                                                                                                                                                                                                                                                                                                                                  04-APR-1996;
16-APR-1996;
                                                                                                                                                                                                                                                                                                                                                                     16-0CT-1997
                                                                                                                       Hereditary
                                                                                                                                                                                                                                                                                             variation
                                                                                   AAT96690;
                                                                                                                                                                                                                                                                                                                      mutation
                                                                                                                                                                                                                                                                      mutation
                                                                                                                                                                                                                                                    intron
                                                                                                                                                                                              intron
                                                                                                                                                                                                                intron
                                                                                                                                                                            intron
                                                                                                                                                                                                                                  intron
                                          552
                              904
                                                                 AAT96690
                                                                                                                                                    Key
                                                                                   g
       δ
                               δ
```

```
This genomic DNA sequence corresponds to the human gene whose mutated form is associated with hereditary haemochromatosis (HH).

To identify this novel gene, allelic association patterns were determined between known markers and the HH locus in the HLA region of chromosome 6. A physical clone coverage was then generated cterending from D6265, which is a marker that is centromeric of HLA-A, in a telomeric direction through D62576, a marker at which the allelic association was no longer observed. A single mutation the allelic association was no longer observed. A single mutation of sease. This comprises a G to A substitution that is present in 64 of isease. This comprises and in 4% of unaffected chromosomes. Tr results in a cys tor yr substitution in the encoded protein (see AAW36699) at a critical disulphide bridge important for secondary structure. The following are claimed; the HH genomic DNA (1), a structure. The following are claimed; the HH genomic DNA (1), a structure. The following of septide in the result is a condition of sequence (1a) (see AAM3699) and their 24d, 24d2 and 24d7, variants; a cloning or expression vector; host cells; a condition of sequence of the common HH gene of these; an antibody produced using the peptide; a method creating other and sequence of the common HH gene of the common in a minal model for the HH disease, metal holds in indigation of injury due to oxidative process in vivo or the mitigation of injury due to oxidative process in vivo or the mitigation of injury due to oxidative process in vivo or the mitigation of injury due to oxidative process on vivo or the mitigation of injury due to oxidative process on vivo or the mitigation of injury due to oxidative process on vivo or the mitigation of injury due to oxidative process on vivo or the arrangements of an outleic and ordinal model for the HH disease, and ordinal scenering potential the HH gene. The invariants, useful for detecting a polymorleotide disease, mand and an ordinal model for the HH disease, including gene therep
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tggaaaatcacaaccacagcaagggtatgtggagagggggcctcaccttcctgaggttgt 4061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4062 cagagcttttcatcttttcatgcatcttgaaggaaacagctggaagtctgaggtcttgtg 4121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     358 TGTTTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAGAGTC 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
Hereditary haemochromatosis gene and variants - useful for diagnosis and treatment of hereditary haemochromatosis disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGCTGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           298 GTTCACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCGTGTGGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      22.3%; Score 321; DB 18; Length 10825; 72.1%; Pred. No. 8.6e-82; ive 0; Mismatches 0; Indels 209;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 10825 BP; 2996 A; 2254 C; 2648 G; 2927 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGGAAAATCACAACCACAGAAG-------
                                                                                                                                  Disclosure; Fig 3; 115pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches 540; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              therapeutics.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
```

ï

ä

```
AAC68426;
                                                                         298
                                                                                                                    3822
                                                                                                                                                   3882
                                                                                                                                                                 478
                                                                                                                                                                                                              4002
                                                                                                      358
                                                                                                                                    418
                                                                                                                                                                                               538
                                                                                                                                                                                                                                                                                                                                                                                                             749
                                                                                                                                                                                                                                                                                                                                                                                                                                            803
                                                                                                                                                                                                                                                                                                                                                                                                                                                          4482
                                                                                                                                                                                                                            561
                                                                                                                                                                                                                                                         561
                                                                                                                                                                                                                                                                                      561
                                                                                                                                                                                                                                                                                                                                                  629
                                                                                                                                                                                                                                                                                                                                                                               689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 1
AAC68426
XX
AC AAC6
XX
DT 21-F
XX
DE HUMA
XX
SXSS
                                                                         ò
                                                                                       요
                                                                                                       οy
                                                                                                                   g
                                                                                                                                    ò
                                                                                                                                                  g
                                                                                                                                                                              g
                                                                                                                                                                                               δ
                                                                                                                                                                                                           g
                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                 ŏ
                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                                                   δy
                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                 δy
                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                               δλ
                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                            Db
                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                              4182 aaatagggacctattcctttggttgcagttaacaaggctggggatttttccagagtccca 4241
                                                                              4301
                                                                                                            4361
                                                                                                                                                                 568
                                                                 628
                                                                                              889
                                                                                                                            748
                                                                                                                                                         808
                                                                                                                                                                                                                                                                                                                                                                                                                                    Wolff RK;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              New hereditary hemochromatosis gene products or polypeptides, useful for treating hereditary hemochromatosis in a patient, and as a metal chelation agent alleviating iron overload -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The present invention relates to hereditary hemochromatosis gene products. These proteins may be used to treat a patient diagnosed as having human hemochromatosis disease. It is also useful as a metal chelation agent or as a T-cell differentiation factor, and for
                                                              ggagcagggaagggaaggaatttgcttcctgagatcatttggtccttggggatggtgg
                                                                                          AGCAGCAGAACCCAGGGCCTGGCCCACCAAGCTGGAGAAAGGCACAAAGATTCGGGC
                                                                                                                                                       CAGGCAGAACAGGGCCTACCTGGAGGGACTGCCCTGCACAGCTGCAGCAGTTGCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                   Tsuchihashi Z,
                                                                                                                                                                                                                                                                                                 hereditary hemochromatosis; chelation agent; ell differentiation factor; iron overload; ds
                                                                                                                                                                                                                                                                                                                                                                                                                                   ď
                                                                                                                                                                                                                                                                                                                                                                                                                                   Ruddy
                                                                                                                                                                                            GCTGGGGAGAGGTGTTTTGGACCAACAAG 837
                                                                                                                                                                                                                                                                                    Human hereditary hemochromatosis DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                  Gnirke A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Disclosure; Fig 3; 108pp; English.
                                                                                                                                                                                                                                          ВР
                                                                                                                                                                                                                                       AAC68425 standard; DNA; 10825
                                                                                                                                                                                                                                                                                                                                                                                    96US-0630912.
96US-0632673.
96US-0652265.
                                                                                                                                                                                                                                                                                                                                                                      97US-0834497
                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                  (BIRA ) BIO-RAD LAB INC
                                                                                                                                                                                                                                                                                                                                                                                                                                 Drayna DT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 2001-006341/01.
P-PSDB; AAB36869.
                                                                                                                                                                                                                                                                                                                         Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                     04-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                   23-MAY-1996;
                                                                                                                                                                                                                                                                     21-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                    04-APR-1996;
                                                                                                                                                                                                                                                                                                                                      US6140305-A.
                                                                                                                                                                                                                                                                                                                                                      31-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                 Thomas WJ,
Feder JN;
                                                                                                                                                                                                                                                                                                                                                                                            16-APR-1996
                                                                                                                                                                                                                                                       AAC68425;
                                                                                                                                                                                                                                                                                                           T-cell
                  4122
                                                              569
                                                                                           629
                                                                                                           4302
                                                                                                                          689
                                                                                                                                        4362
                                                                                                                                                       749
                                                                                                                                                                     4422
                                                                                                                                                                                                  4482
    561
                                 561
                                                                                                                                                                                     809
                                                                                                                                                                                                                               g
                                            QQ
                                                                        g
                                                                                                                                    g
                                                                                                                                                                    g
                                ô
                                                             ò
                                                                                          ò
                                                                                                       g
                                                                                                                         ò
                                                                                                                                                   ò
                                                                                                                                                                                                  셤
                                                                                                                                                                                    ò
```

```
replacement
                                                                                                                                                                                                                                                                                                                                                 3941
                                                                                                                                                                                                                                                                              3881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4121
alleviating iron overload. They may also be used in protein replacemer therapy for individuals having a defective human hemochromatosis gene.
                                                                                                                                                                                                                                                                                                                                                                                                    4181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4421
                                                                                                                                                                                           3762 gttcacactctctgcactacctcttcatgggtgcctcagagcaggaccttggtcttcct 3821
                                                                                                                                                                                                                                                                                                                 477
                                                                                                                                                                                                                                                                                                                                                                                    537
                                                                                                                                                                                                                                                                                                                                                                                                                                                       260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     748
                                                                                                                                                                        GTTCACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCT 357
                                                                                                                                          Gaps
                                                                                                                                                                                                                                                              4062 cagagetttteatetttteatgeatettgaaggaaacagetggaagtetgaggtettgtg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4122 ggagcagggaagaaggaaggaatttgcttcctgagatcatttggtccttggggatggtgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4182 aaatagggacctattcctttggttgcagttaacaaggctggggattttccagagtccca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGTTTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAGAGTC
                                                                                                                                                                                                                                                                                                             GCCGTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGC
                                                                                                                                                                                                                                                                                                                                                 gccgtgtggagccccgaactccatgggtttccagtagaatttcaagccagatgtggctgc
                                                                                                                                                                                                                                                                                                                                                                                AGCTGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ---GAGTCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GAAGTACGGGTATGATGGGCAGGACCACCTTGAATTCTGCCCTGACACACTGGATTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGCAGCAGAACCCAGGGCCTGGCCCAAGCTGGAAAAGGCACAAAGATTCGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CAGGCAGAACAGGGCCTACCTGGAGAGGGACTGCCCTGCACAGCTGCAGGAGTTGCTGGA
                                                                                                                                        Indels 209;
                                                                                                       Length 10825;
                                                      T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mutation DNA
                                                                                                   Score 321; DB 22; 1
Pred. No. 8.6e-82;
0; Mismatches 0;
                                                    Sequence 10825 BP; 2998 A; 2253 C; 2648 G; 2926
                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGGAAAATCACAACCACAGCAAG--------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              24d1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCTGGGGAGAGGTGTTTTGGACCAACAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Human hereditary hemochromatosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAC68426 standard; DNA; 10825
                                                                                                     Query Match 22.3%;
Best Local Similarity 72.1%;
Matches 540; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        . . . . . . . . . . . . . . . .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     21-FEB-2001
```

```
4361
                                                                                                                                                                         4421
    4182 aaatagggacctattcctttggttgcagttaacaaggctggggatttttccagagtccca 4241
                                                                                                                                                                                                     748
                                              CACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAGGGCTACTG
                                                                                        GAAGTACGGGTATGATGGGCAGGACCACCTTGAATTCTGCCCTGACACTGGATTGGAG
                                                                                                       AGCAGCAGAACCCAGGGCCTGGCCCACCAAGCTGGAAAGGCACAAGATTCGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human, histocompatibility iron loading protein; HFE protein; major histocompatibility complex; non-classical class I gene; chromosome 6p; iron disorder; haemochromatosis; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Genomic DNA of a histocompatibility iron loading (HFE) gene.
                                                                                                                                                                                                                                                                           GCTGGGGAGAGGTGTTTTGGACCAACAAG 837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
1028..1324
                                                                                                                                                                                                                                                                                                                                                               AAA96794 standard; cDNA; 12146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /number= 1
4652..4915
/*tag= c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7995..9050
/*tag= k
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /number= 2
5125..5400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5401..6493
/*tag= f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /number= 3
6494..6769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /number= 1
1325..4651
/*tag= b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4916..5124
/*tag= d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /*tag= e
/number= 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /*tag= i
/number= 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6928..7041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7042..7994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6770..6927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /*tag= a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /numper=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /number=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'number-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /number=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /number=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                       19-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                            AAA96794;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          intron
                                                                                                                                               689
                                                                                                                                                                                                                                                              809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo
                                569
                                                                                      629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Key
                                                                                                                                                                                                                                                                                                                                                     AAA96794
                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                 pp
                                                                                                                                                                                                                                                                                                                                                                              ŏ
                                                                                                                                               δ
                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ï
                                                                                                                                                                                                                                                                                                                                                                                                                                 products. These proteins may be used to treat a patient diagnosed as having human hemochromatosis disease. It is also useful as a metal chelation agent or as a T-cell differentiation factor, and for alleviating iron overload. They may also be used in protein replacement therapy for individuals having a defective human hemochromatosis gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cagagetttteatettteatgeatettgaaggaaacagetggaagtetgaggtettgtg 4121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4122 ggagcagggaagagggaaggaatttgcttcctgagatcatttggtccttggggatggtgg 4181
                                                                                                                                                                                                                                               Tsuchihashi Z, Wolff RK;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tggaaaatcacaaccacaggaaagggtatgtggagaggggggcctcaccttcctgaggttgt 4061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                358 TGTTTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATGAGAGTC 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      --GAGICCCA 568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         298 GITCACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCT 357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                New hereditary hemochromatosis gene products or polypeptides, useful for treating hereditary hemochromatosis in a patient, and as a metal chelation agent alleviating iron overload -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3822 tgitigaagcitigggctacgiggatgaccagcigitcgigitctaigaicatgagagic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        418 GCCGTGTGGAGCCCCGGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 478 AGCTGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTA
                                                                                                                                                                                                                                                                                                                                                                                                                       The present invention relates to hereditary hemochromatosis gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Indels 209;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 10825;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 10825 BP; 2999 A; 2253 C; 2647 G; 2926 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGGAAAATCACAACCACAGCAAG-----------
HH; hereditary hemochromatosis; chelation agent; T-cell differentiation factor; iron overload; ds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 321; DB 22;
Pred. No. 8.6e-82;
0; Mismatches 0;
                                                                                                                                                                                                                                               Ruddy D,
                                                                                                                                                                                                                                               Gnirke A,
                                                                                                                                                                                                                                                                                                                                                                                          Disclosure; Fig 3; 108pp; English.
                                                                                                                                                        96US-0630912.
96US-0632673.
96US-0652265.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  22.3%;
72.1%;
                                                                                                                               97US-0834497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches 540; Conservative
                                                                                                                                                                                                                  (BIRA ) BIO-RAD LAB INC
                                                                                                                                                                                                                                             Drayna DT,
                                                                                                                                                                                                                                                                                      WPI; 2001-006341/01.
P-PSDB; AAB36870.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity
                                            Homo sapiens
                                                                                                                             04-APR-1997;
                                                                                                                                                                         16-APR-1996;
23-MAY-1996;
                                                                      US6140305-A
                                                                                                  31-OCT-2000
                                                                                                                                                          04-APR-1996
                                                                                                                                                                                                                                               Thomas WJ,
                                                                                                                                                                                                                                                           Feder JN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4062
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    561
```

g

à

ŏ

셤

688

748

```
5012 ggagcagggaagagggaaggaatttgcttcctgagatcatttggtccttggggatggtgg 5071
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bovine butyrophilin, BT; human hereditary haemochromatosis; HFE; diagnosis; iron metabolism; NPT3; NPT4; RoRet; BTF1; BTF2; BTF3; BTF5; milk protein; lupus; Sjogren's syndrome; hypophosphatemia; type 1 sodium transport gene; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              products from the human haemochromatosis gene. The present sequence represents a hereditary haemochromatosis subregion from an hereditary haemochromatosis (HI) affected individual. Also described is a method to determine the presence of energy haemochromatosis (HFE) gene mutation in an individual comprising:

(a) providing DNA or RNA from the individual; and (b) assessing the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hereditary haemochromatosis subregion from an HH affected individual.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hereditary haemochromatosis gene products - used to develop products
                                                                                                                                        5312 caggcagaacagggcctacctggagagggactgcctgcacagctgcagcagttgctgga
                                                                             5072 aaatagggacctattcctttggttgcagttaacaaggctggggatttttccagagtccca
                                                                                                                                                                                                                                                                                   689 AGCAGCAGAACCCAGGGCCTGGCCCACCAAGCTGGAGTGGGAAAGGCACAAAATTCGGGC
                                                                                                                                                                                                                                                                                                        749 CAGGCAGAACAGGGGCCTACCTGGAGAGGGACTGCCCTGCACAGCTGCAGTTGCTGGA
                                                                                                                     CACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAGGGCTACTG
                                                                                                                                                                                                   GAAGTACGGGTATGATGGGCAGGACCACCTTGAATTCTGCCCTGACACACTGGATTGGAG
                                                                                                                                                                                                                                                                                                                                                                                      The present invention describes hereditary haemochromatosis gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          for the diagnosis and treatment of hereditary disorders in iron metabolism
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Thomas WJ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ruddy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  837
                                                                                                                                                                                                                                                                                                                                                                                                                                               GCTGGGGAGAGGTGTTTTGGACCAACAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Lauer PM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAV57903 standard; DNA; 237326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Claim 1; Fig 9; 209pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          97WO-US17658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  97US-0852495
96US-0724394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    nal GS, La
Wolff RK;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (PROG-) PROGENTIOR INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 1998-240014/21.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Kronmal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Tsuchihashi Z,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            W09814466-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          30-SEP-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21-DEC-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  07-MAY-1997;
01-0CT-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    09-APR-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Feder JN,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAV57903;
                                       561
                                                                                                                                                                                                   629
                                                                                                                                                                                                                                                                                                                                                                                                                                               808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAV57903/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
                                                                             g
                                                                                                                                                           qq
                                                                                                                                                                                                                                                                                                                       pp
                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δy
                                                                                                                       δλ
                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                               õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The present sequence represents the human histocompatibility iron loading (HFE) gene. The HFE gene is a major histocompatibility (MHC) non-classical class I gene located on chromosome 6p. Mutations in the gene lead to iron disorders. The specification describes a method for disorder in a mammal. The method comprises determining the presence of a mutation in exon 2 or an intron of a HFE gene or protein. The mutation is not a C to G missense mutation at nucleotide 187 of the sequence given in A99769 (Genbank Accession number 160319). The presence of the mutation indicates the disorder or the genetic susceptibility to the disorder. The method is used to diagnose an iron disorder
                                                                                                                                                                                                                                                                                                                                                                                                  Diagnosing an iron disorder e.g. hemochromatosis or a genetic susceptibility to develop it, by determining the presence of a mutation in exon 2 or an intron of a histocompatibility iron loading nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tgtttgaagctttgggctacgtggatgaccagctgttcgtgttctatgatcatgagagtc 4771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4832 agctgagtcagagtctgaaagggtgggatcacatgttcactgttgacttctggactatta 4891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1952 cagagetttteatetttteatgeatettgaaggaaacagetggaagtetgaggtettgtg 5011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    358 TGTTTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAGAGTC 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    418 GCCGTGTGGAGCCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGC 477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTTCACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCT 357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGCTGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tggaaaatcacaaccacagcaagggtatgtggagagggggcctcaccttcctgaggttgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    e.g. haemochromatosis, or a genetic susceptibility to develop it.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels 209;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 12146;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 12146 BP; 3383 A; 2474 C; 2911 G; 3378 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     22.3%; Score 321; DB 21; 72.1%; Pred. No. 9.1e-82;
                                                                                                                                                                                                                                                                                                                           Barton JC;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Example 1; Page 21-28; 55pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                538 TGGAAAATCACAACCACAGCAAG-----
                                                                                                                                                                                                                                                                                                                         Sawada-Hirai R,
                                                                                                                                                                                                                                                                               (BILL-) BILLUPS-ROTHENBERG INC
                     /*tag= 1
/number= 6
10206..10637
/*tag= m
                                                                                                                                                                                                 24-MAR-2000; 2000WO-US07982
9051..10205
                                                                                                                                                                                                                                           99US-0277457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               540; Conservative
                                                                                                                                                                                                                                                                                                                                                               WPI; 2000-647244/62.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
                                                                                                                                                                                                                                                                                                                         BE,
                                                                                                                   WO200058515-A1
                                                                                                                                                                                                                                           26-MAR-1999;
                                                                                                                                                           05-OCT-2000
                                                                                                                                                                                                                                                                                                                       Rothenberg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
  intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                561
                                                            exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best
```

g

ò 엄 ò Q ò g οy Q ò Q ò

14

```
1;
DNA or RNA for the presence or absence of a haplotype or genotype where the presence or absence of the haplotype genotype indicates the likely presence of the HFE gene mutation in the genome of the individual. The HFE gene sequences from the present invention can be used to develop products for use in the diagnosis and treatment of HFE. The present invention also describes BFF genes, which are homologues of the milk protein butyrophilin (BF), and can be used in the production of agonists and antagonists of BF function. Also described are: (1) a RORET gene treatment of lupus and Sigaren's syndrome; and (2) NPT3 and NPT4 genes which are homologues of a type 1 sodium transport gene, and can similarly be used for hypophosphatemia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGCTGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTA 537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   42679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CAGAGCTTTTCATCTTTTCATGCATCTTGAAGGAAACAGCTGGAAGTCTGAGGTCTTGTG 42979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              42978 GGAGCAGGGAAGAGGGAAGTTTGCTTCCTGAGATCATTTGGTCCTTGGGGATGGTGG 42919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         42918 AAATAGGGACCTATTCCTTTGGTTGCAGTTAACAAGGCTGGGGATTTTTCCAGAGTCCCA 42859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     42799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          808
                                                                                                                                                                                                                                                                                                                                                                                                                                     477
                                                                                                                                                                                                                                                                                                                                                                         TGTTTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAGAGTC 417
                                                                                                                                                                                                                                                                                                              GITCACACICICIGCACIACCICITCAIGGGIGCCICAGAGCAGGACCIIGGICITICCI 357
                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAGGGCTACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAAGTACGGGTATGATGGGCAGGACCACCTTGAATTCTGCCCTGACACACTGGATTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGCAGCAGAACCCAGGGCCTGGCCCACCAAGCTGGAGTGGGAAAGGCACAAAGATTCGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CAGGCAGAACAGGGCCTACCTGGAGAGGGACTGCCCTGCACAGCTGCAGCAGTTGCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCGTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGC
                                                                                                                                                                                                       Sequence 237326 BP; 69596 A; 48904 C; 48217 G; 70609 T; 0 other;
                                                                                                                                                                                                                                               Length 237326;
                                                                                                                                                                                                                                                                                 Indels 209;
                                                                                                                                                                                                                                               Score 321; DB 19; Pred. No. 3.9e-81; 0; Mismatches 0;
                                                                                                                                                                                                                                                                                 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       42618 GCTGGGGAGAGGTGTTTTGGACCAACAG 42590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGGAAAATCACAACCACAGCAAG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCTGGGGAGAGGTGTTTTGGACCAACAAG
                                                                                                                                                                                                                                                 22.3%;
ilarity 72.1%;
Conservative
                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                               540;
                                                                                                                                                                                                                                                  Query Match
Best Local S
                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         42678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             42738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       809
                                                                                                                                                                                                                                                                                                               298
                                                                                                                                                                                                                                                                                                                                            43338
                                                                                                                                                                                                                                                                                                                                                                           358
                                                                                                                                                                                                                                                                                                                                                                                                                                     418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   43218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          43098
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     42858
                                                                                                                                                                                                                                                                                                                                                                                                        43278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    43038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                     οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
      SSSSSSSSSSSSSSS
                                                                                                                                                                                                                                                                                                               à
```

```
products. These proteins may be used to treat a patient diagnosed as having human hemochromatosis disease. It is also useful as a metal chelation agent or as a T-cell differentiation factor, and for alleviating iron overload. They may also be used in protein replacement therapy for individuals having a defective human hemochromatosis gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tggaaaatcacaaccacagcaagggtatgtggagaggggcctcaccttcctgaggttgt 4061
                                                                                                                                                                                                                                                                                                                                                                                           Wolff RK;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   New hereditary hemochromatosis gene products or polypeptides, useful for treating hereditary hemochromatosis in a patient, and as a metal chelation agent alleviating iron overload -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  358 TGTTTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAGAGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3822 tgtttgaagetttgggetacgtggatgaccagetgttegtgttetatgatgatgagggte
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3882 gccqtqtqqaqccccqaactccatgggtttccagtagaatttcaagccagatgtggctgc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCCGTGTGGAGCCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            478 AGCTGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 present invention relates to hereditary hemochromatosis gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 10825;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            209;
                                                                                                                                                                                                                                                                                                                                                                                             Tsuchihashi Z,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 10825 BP; 2998 A; 2252 C; 2649 G; 2926 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 22.2%; Score 319.4; DB 22; Best Local Similarity 72.0%; Pred. No. 2.5e-81; Matches 539; Conservative 0; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 22;
                                                                                                                                                 T-cell differentiation factor; iron overload; ds
                                                                                                                                    HH; hereditary hemochromatosis; chelation agent;
                                                                                                                                                                                                                                                                                                                                                                                             Ď
                                                                                                                                                                                                                                                                                                                                                                                             Ruddy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TGGAAAATCACAACCACAGCAAG------
                                                                                                                                                                                                                                                                                                                                                                                             Thomas WJ, Drayna DT, Gnirke A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Disclosure; Fig 3; 108pp; English.
                                                                                                      Human hereditary hemochromatosis
           AAC68427 standard; DNA; 10825
                                                                                                                                                                                                                                                                                                  96US-0630912.
96US-0632673.
96US-0652265.
                                                                                                                                                                                                                                                                       97US-0834497
                                                                       (first entry)
                                                                                                                                                                                                                                                                                                                                                                (BIRA ) BIO-RAD LAB INC
                                                                                                                                                                                                                                                                                                                                                                                                                                           WPI; 2001-006341/01.
                                                                                                                                                                                                                                                                                                                                                                                                                                                        P-PSDB; AAB36871.
                                                                                                                                                                                 Homo sapiens
                                                                                                                                                                                                                                                                       04-APR-1997;
                                                                                                                                                                                                                                                                                                    04-APR-1996;
16-APR-1996;
                                                                                                                                                                                                                                                                                                                                  23-MAY-1996;
                                                                       21-FEB-2001
                                                                                                                                                                                                             US6140305-A.
                                                                                                                                                                                                                                          31-OCT-2000.
                                                                                                                                                                                                                                                                                                                                                                                                               Feder JN;
                                         AAC68427;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  418
AAC68427
                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δŻ
```

ij

```
4121
                                                                                        4241
                                                                                                                            4301
                                                                                                                                                             4361
                                                                                                                                                                                                 4421
                                                      4181
                                                                                                                                                                                                                          RK;
  560
                                                                       568
                                                                                                          628
                                                                                                                                             688
                                                                                                                                                                                748
                                                                                                                                                                                                                  808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             useful
a metal
                                                                                                      CACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAACACAACAGTACCGAGGGCTACTG
                                                                                  aaatagggacctattcctttggttgcagttaacaaggctggggattttccagagtccca
                                                                                                                                          GAAGTACGGGTATGATGGGCAGGACCACCTTGAATTCTGCCCTGACACACTGGATTGGAG
                                                                                                                                                   cagagettttcatetttcatgcatettgaaggaaacagetggaagtetgaggtettgtg
                                                    ggagcagggaagggaaggaatttgcttcctgagatcatttggtccttggggatggtgg
                                                                        GAGTCCCA
                                                                                                                                                                              AGCAGCAGAACCCAGGGCCTGGCCCACCAAGCTGGAGAAAGGCACAAGATTCGGGC
                                                                                                                                                                                                                 CAGGCAGAACAGGGCCTACCTGGAGAGGGACTGCCCTGCACAGCTGCAGGTTGCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               present invention relates to hereditary hemochromatosis gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             or polypeptides, patient, and as a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Tsuchihashi Z,
                                                                                                                                                                                                                                                                                                                                                                      DNA
                                                                                                                                                                                                                                                                                                                                                                  Human hereditary hemochromatosis 24d1/2 mutation
                                                                                                                                                                                                                                                                                                                                                                                   HH; hereditary hemochromatosis; chelation agent; T-cell differentiation factor; iron overload; ds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         New hereditary hemochromatosis gene products for treating hereditary hemochromatosis in a chelation agent alleviating iron overload -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ů,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ruddy
                                                                                                                                                                                                                                                            GCTGGGGAGAGGTGTTTTGGACCAACAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gnirke A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               English
                                                                                                                                                                                                                                                                                                                 BP
                                                                                                                                                                                                                                                                                                                 DNA; 10825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 96US-0632673.
96US-0632673.
96US-0652265.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  97US-0834497
                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gisclosure; Fig 3; 108pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (BIRA ) BIO-RAD LAB INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Thomas WJ, Drayna DT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 2001-006341/01.
                                                                                                                                                                                                                                                                                                                 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          P-PSDB; AAB36872.
                                                                                                                                                                                                                                                                                                                                                 21-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  04-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  04-APR-1996;
16-APR-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    23-MAY-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                               US6140305-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                 31-0CT-2000
                                                                                                                                                                                                                                                                                                               AAC68428
                                                                                                                                                                                                                                                                                                                                 AAC68428;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Feder JN;
                                                                                                                                                                                                                                                                                               12
                                                    4122
                                                                                                                         4242
                 4062
                                                                                      4182
                                                                                                        269
                                                                                                                                           629
                                                                                                                                                            4302
                                                                                                                                                                                                                                 4422
                                                                                                                                                                                                                                                   809
561
                                   561
                                                                      561
                                                                                                                                                                             689
                                                                                                                                                                                                                749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The
                                                                                                                                                                                                                                                                                                      AAC68428
               g
ò
                                  à
                                              q
                                                                  Q
D
                                                                                                  oy
Dp
                                                                                                                                          ŏ
                                                                                                                                                     9
                                                                                                                                                                        ò
                                                                                                                                                                                          g
                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                   ò
```

```
ä
products. These proteins may be used to treat a patient diagnosed as having human hemochromatosis disease. It is also useful as a metal chelation agent or as a T-cell differentiation factor, and for alleviating iron overload. They may also be used in protein replacement therapy for individuals having a defective human hemochromatosis gene.
                                                                                                                                                                                                                                             3881
                                                                                                                                                                                                                                                                                              3941
                                                                                                                                                                                                                                                                                                                                               4001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4361
                                                                                                                                                                              4121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4481
                                                                                                                                                                                                                                                                     477
                                                                                                                                                                                                                                                                                                                                                                        560
                                                                                                                                                                                                                                                                                                                                                                                                                        560
                                                                                                                                                                   357
                                                                                                                                                                                                                     417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              808
                                                                                                                                           Gaps
                                                                                                                                                                                                                                3822 tgtttgaagctttgggctacgtggatgaccagctgttcgtgttctatgatgatgagagtc
                                                                                                                                                                                                                                                                                 GITCACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                               4062 cagagetttteatetttteatgeatettgaaggaaacagetggaagtetgaggtettgtg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGTTTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAGAGTC
                                                                                                                                                                                                                                                                     GCCGTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGC
                                                                                                                                                                                                                                                                                                                      478 AGCTGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4122 ggagcagggaagagggaaggaatttgcttcctgagatcatttggtccttggggatggtgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----GAGTCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 aaatagggacctattcctttggttgcagttaacaaggctggggattttccagagtccca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAGGCAGAACAGGGCCTACCTGGAGAGGACTGCCCTGCACAGCTGCAGGGGTTGCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAGGGCTACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAAGTACGGGTATGATGGGCAGGACCACCTTGAATTCTGCCCTGACACACTGGATTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGCAGCAGAACCCAGGGCCTGGCCCACCAAGCTGGAGAAGGCACAAGATTCGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 319.4; DB 22; Length 10825;
Pred. No. 2.5e-81;
0; Mismatches 1; Indels 209;
                                                                             Sequence 10825 BP; 2999 A; 2252 C; 2648 G; 2926 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCTGGGGAGAGGTGTTTTGGACCAACAAG 837
                                                                                                                                                                                                                                                                                                                                                                       538 TGGAAATCACAACCACAGCAAG----
                                                                                                                 22.2%;
llarity 72.0%;
Conservative 0
                                                                                                                             Local Similarity
tes 539; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                        . . . . . . . .
                                                                                                                 Query Match
Best Local Si
Matches 5399
                                                                                                                                                                  298 (
                                                                                                                                                                                                                    358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4422
                                                                                                                                                                                                                                                                     418
                                                                                                                                                                                                                                                                                                                                                                                                                        561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4482
   88888888
                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                          8
                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                    δy
                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ά
```

08:49:52

Search completed: June 19, 2002, Job time: 7877 sec

```
ATTORNEY/AGENT INFORMATION:
NAME: Smith, William M.
REGISTRATION NUMBER: 30,223
REFRENCE/DOCKET NUMBER: 1795:
TELECOMMUNICATION INFORMATION:
TELEFRAX: (415) 576-0200
INFORMATION FOR SEQ ID NO: 9:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                US-08-652-265-9

; Sequence 9, Application US/08652265

; Patent No. 6025130

; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           replace(408, "c")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH: 1440 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY: CDS
LOCATION: 222..1268
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY: allele
LOCATION: replace
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TOPOLOGY: linear
                                             280
279
279
279
278.4
278.4
278.4
175.2
1175.2
1175.2
1176.4
1168.4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURE
                                                                                                                                                                                                                                                                        RESULT
                                                                                   (without alignments)
4472.841 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Appli
Appli
Appli
Appl
Appl
Appl
Appl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Appl
Appli
Appli
Appli
Appli
Appli
Appli
Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Appli
Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                              Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                  1440
1 GGGACACTGGATCACCTAG......TCCTCAAAAGATTTCCCCA 1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 10,
Sequence 11,
Sequence 10,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sequence 1, Sequence 3, Sequence 3, Sequence 1, Sequence 27, Sequence 20, Sequence 22, Sequence 22, Sequence 5,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Seguence 9,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 11
Sequence 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 12
Sequence 12
Sequence 17
Sequence 17
Sequence 3,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence Sequence Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence
Sequence
Sequence
                                                                      June 19, 2002, 06:38:35; Search time 79.08 Seconds
                                                                                                                                                                                                                                                                                                                                               Issued_Patents_NA:*
. /cgn2_6/ptodata/1/ina/5A_COMB.seq:*
. /cgn2_6/ptodata/1/ina/5B_COMB.seq:*
. /cgn2_6/ptodata/1/ina/6A_COMB.seq:*
. /cgn2_6/ptodata/1/ina/6B_COMB.seq:*
. /cgn2_6/ptodata/1/ina/PcTUS_COMB.seq:*
. /cgn2_6/ptodata/1/ina/PcTUS_COMB.seq:*
. /cgn2_6/ptodata/1/ina/Packfiles1.seq:*
GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-652-265-9

US-08-834-497A-9

US-08-652-265-11

US-08-652-265-11

US-08-834-497A-10

US-08-834-497A-11

US-08-834-447A-11

US-09-503-444A-11

US-08-834-497A-12

US-09-277-457-1

US-08-834-497A-1

US-08-834-497A-1

US-08-834-497A-1

US-08-834-497A-1

US-08-834-497A-1

US-08-834-497A-1

US-09-503-444A-1

US-08-834-497A-1

US-08-834-497A-1

US-09-503-444A-1

US-09-503-444A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5-08-724-394A-20
5-08-724-394A-21
5-08-724-394A-22
5-08-652-265-5
5-08-652-265-7
                                                                                                                                                                                                                                   Potal number of hits satisfying chosen parameters:
                                                                                                                                                                                                          383533 segs, 122816752 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SUMMARIES
                                                                                                                                                                                                                                                                                              Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                               - nucleic search, using sw model
                                                                                                                                                                       IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                            seq length: 0 seq length: 2000000000
                                                                                                                        US-09-497-957-9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10825
12146
246240
246240
246240
10825
10825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1438.4
1438.4
1438.4
1438.4
1438.4
1436.8
1436.8
1436.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score
                                                                                                                                    Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             321
321
321
321
321
321
321
                                                                                                                                                                        Scoring table:
                                                                                                                                                                                                                                                            Minimum DB
Maximum DB
                                                OM nucleic
                                                                                                                                                                                                            Searched:
                                                                                                                                                  Sequence:
                                                                        Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .
№
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Result
```

```
Appl
Appli
Appli
Appli
Appli
Appli
Appli
 Appli
Appli
Appli
Appli
Appli
Appl
                                                                                        , Appl
Appli
, Appl
             Sequence 7, A
Sequence 5, A
Sequence 3, A
Sequence 20,
Sequence 20,
Sequence 20,
                                                                                                                                                                                          Sequence 7, Al
Sequence 37, 3
Sequence 4, Al
                                                                                     Sequence 13,
Sequence 4, A
Sequence 21,
Sequence 21,
Sequence 21,
Sequence 5, A
                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Thomas, Winston J.
APPLICANT: Thomas, Winston J.
APPLICANT: Drayna, Dennis T.
APPLICANT: Feder, John N.
APPLICANT: Gnirke, Andreas
APPLICANT: Ruddy, David
APPLICANT: Tsuchihashi, Zenta
APPLICANT: Wolff, Roger K.
TITLE OF INVENTION: Hereditary Hemochromatosis Gene
NUMBER OF SEQUENCES: 44
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY: USA
ZIP: 9411-3834

ZIP: 9411-3834

COMPUTER READBLE FORM:
MEDIUW TYPE: FLOPPY disk
COMPUTER: IBM PC compatible
OPRATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30

CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/652,265

FILING DATE: 23-MAY 1996
CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE: Townsend and Townsend and Crew LLP STREET: Two Embarcadero Center, Eighth Floor CITY: San Francisco STATE: California
US-09-503-444A-5
US-09-503-444A-7
US-08-632-673B-3
US-08-632-673B-3
US-08-632-673B-13
US-08-632-673B-13
US-08-632-673B-14
US-08-632-673B-14
US-08-632-673B-14
US-08-632-673B-14
US-08-632-673B-14
US-08-632-673B-14
US-08-632-673B-14
US-08-890-719-5
US-08-890-719-10
US-08-890-719-10
US-08-890-719-10
US-08-890-719-10
US-08-890-719-10
US-08-890-719-10
                                                                                                                                                                                                                   US-08-890-719-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     17957-000500
```

a

```
COMPUTER READBLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: Windows 95
SOFTWARE: FastSEQ for Windows Version;
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE: Pennie & Edmonds LLP
STREET: 1155 Avenue of the Americas
CITY: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 9, Application US/08834497A
Patent No. 6140305
GENERAL INFORMATION:
APPLICANT: Drayma, Dennis T.
APPLICANT: Feder, John N.
APPLICANT: Roder, John N.
APPLICANT: Ruddy, David
APPLICANT: Ruddy, David
APPLICANT: Wolff, Roger K.
APPLICANT: Wolff, Roger K.
TITLE OF INVENTION: HEREDITARY HEMON
NUMBER OF SEQUENCES: 76
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STATE: New York
COUNTRY: USA
ZIP: 10036-2811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 2
US-08-834-497A-9
                781
                                                         841
                                                                             841
                                                                                                                                                                                                      1021
                                                                                                                                                                                                                           1081
                                                                                                                                                                                                                                              1081
                                                                                                                                                                                                                                                                                                          1201
                                                                                                 901
                                                                                                                      901
                                                                                                                                          196
                                                                                                                                                                                  1021
                                                                                                                                                                                                                                                                                     1141
                                                                                                                                                                                                                                                                                                                                                   1261
                                                                                                                                                                                                                                                                                                                                                                                          1321
                                  g
                                                                                                                     8
                                                                                                                                                                                                     g
                                                                                                                                                                                                                                           g
                                                        ò
                                                                           g
                                                                                                 δ
                                                                                                                                          á
                                                                                                                                                           g
                                                                                                                                                                                 ò
                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                         ά
                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                         Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                           120
                                                                                                                                                                                                                                                                                                                                       180
                                                                                                                                                                                                                                                                                                                                                            240
                                                                                                                                                                                                                                                                                                                                                                              240
                                                                                                                                                                                                                                                                                                                                                                                                   300
                                                                                                                                                                                                                                                                                                                                                                                                                      300
                                                                                                                                                                                                                                                                                                                                                                                                                                           360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           480
                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AATTCTGCCCTGACACACTGGATTGGAGGAGCAGAACCCAGGGCCTGGCCCACCAAGC 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9
                                                                                                                                                                                                                                                                                    121 CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCCGTTTCCCCGCCCCCAAAAG
                                                                                                                                                                                                                                                                                                                           CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATG
                                                                                                                                                                                                                                ACTAAAGTICIGAAAGACCIGITGCITITICACCAGGAAGITITACIGGGCATCICCTGAG
                                                                                                                                                                                                                                                                                                                                                        AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCCAGGC
                                                                                                                                                                                                                                                                                                                                                                   TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                 CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                361 TTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAGAGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GIGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAAATCACAACCACAGGAAGGAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGGCAGGACCACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ;
                                                                                                                                                                                            1440;
                                                                                                                                                                                            Length
                                                                                                                                                                                                              Indels
    "normal or wild-type
                                                                 wild-type
                                                                                                                              or wild-type
                                                                                                                                                                                                              ö
                                                                                                                                                                                          DB 3;
                                                                  or
                                                                                                                                                                                        100.0%; Score 1440;
100.0%; Pred. No. 0;
ive 0; Mismatches
                                                                                                       NAME/KEY: allele
LOCATION: replace(1066, "g")
OTHER INFORMATION: /phenotype= "normal
OTHER INFORMATION: (unaffected)"
US-08-652-265-9
                                                                 "normal
OTHER INFORMATION: /phenotype= "nor OTHER INFORMATION: (unaffected)" OTHER INFORMATION: /label= 24d2 FEATURE: NAME/KEY: allele LOCATION: replace(414, "a") OTHER INFORMATION: /phenotype= "nor OTHER INFORMATION: (unaffected)" OTHER INFORMATION: /label= 24d7 FEATURE:
                                                                                                                                                                                       Query Match
Best Local Similarity 100.
Matches 1440; Conservative
                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                        301
                                                                                                                                                                                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                                                 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    721
                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  쉽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
```

```
1080
                                                                                                                                                                                                                                                                                                                                                        1140
                                                                                                                                                                                                               1020
                                                                                                                                                                                                                                                1020
                                                                                                                                                                                                                                                                                                                       1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1380
                                                                                                                                                                                                                                                                                                                                                                                                                                         900
                                                                                                       900
                                                                                                                                         960
                                                                                                                                                                            960
                                                                                     CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAACTCA
                                                                                                                                                                                                                                                                                                                                                                                                                       1141 TIGGAGTCATCAGTGGAATTGCTGTTTTTGTCGTCATCTTCATTGGAATTTTGTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1201 TAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGCACTAGCTTAGCTGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCCTGCACAGCTGCAGCAGTTGCTGGAGCTGGGGGAGGTGTTTTGGACCAACAAGTGC
                                                                  CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
                                                                                                                                       CCTTGAACTACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG
                                                                                                                                                                                                             ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT
                                                                                                                                                                                                                                                                                   GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTGCCAGGTGGAGCACC
                                                                                                                                                                                                                                                                                                                                                      CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGGCACTACGTCTTAGCTGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTGAGTGACACCCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1381 IGCCIGACGAACTCCTTGATTTTAGCCTTCTCTGTTCATTTCCTCAAAAAGATTTCCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENE PRODUCTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HEMOCHROMATOSIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2.0b
```

```
1021- GGATAACCTTGGCTGTACCCCTGGGGAAGAGCAGAGATATACGTGCCAGGTGGAGCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                961 ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCCAATGGGGATGGGACCTACCAGGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1141 TTGGAGTCATCAGTGGAATTGCTGTTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCCTGCACAGCTGCAGCAGTTGCTGGAGCTGGGGAGGTGTTTTGGACCAACAAGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTCCTTTGGTGAAGGTGACACATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCTTGAACTACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1021 GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTGCCAGGTGGAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1201 TAATATTAAGGAAGAGCAGGCTTCAAGAGGAGCCATGGGGCACTACGTCTTAGCTGAAC
                                                         TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                                                                                                AATTCTGCCCTGACACACTGGATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACAAGC
                       AAAATCACAACCACAGCAAGGAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                            TICAAGCITIGGGCTACGIGGAIGACCAGCIGITCGIGITCIAIGAICAIGAGAĞICGCC
                                                                                                                                                                GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1261
                                                                                                                                                                                                                                                                        541
                                                                                                                                                                                                                                                                                                                                                                                                     661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             841
                                                                                                               361
                                                                                                                                         361
                                                                                                                                                                                                                    481
                                                                                                                                                                                                                                                                                                                         601
                                                                                                                                                                                                                                                                                                                                                  601
                                                                                                                                                                                                                                                                                                                                                                            199
                                                                                                                                                                                                                                                                                                                                                                                                                               721
                                                                                                                                                                                                                                                                                                                                                                                                                                                       721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     961
            241
                                                                                                                                                                 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             임
                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                 q
                                                                                                                                                                                                                                                                                                                                                                            Qγ
                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QΥ
                                                           φ
                                                                                   a
                                                                                                                δλ
                                                                                                                                     Db
Qy
                                                                                                                                                                                         9
                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCCAAAAG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACTAAAGTICIGAAAGACCIGIIGCIITITCACCAGGAAGIITITACIGGGCAICICCTGAG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGGAAATGGGCCCGGCGAGCCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 3; Length 1440;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /phenotype= "normal or wild-type (unaffected)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               or wild-type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        or wild-type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%; Score 1440;
ilarity 100.0%; Pred. No. 0;
Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /phenotype= "normal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /phenotype= "normal
(unaffected)"
/label= 24d1
                                                                                                                                                                                                        NAME: Poissant, Brian M.
REGISTRATION NUMBER: 28,462
REFERENCE/DOCKET NUMBER: 8907-0056-999
TELECOMUNICATION INFORMATION:
TELEPHONE: 650-493-4935
TELEFAX: 650-493-5556
                                   PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/652,265
FILING DATE: 23-MAY-1996
CLASSIFICATION: 514
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/632,673
FILING DATE: 16-APR-1996
NUMBER: US/08/834,497A: 04-APR-1997
                                                                                                                FILING DATE: 16-APR-1996
CLASSIFICATION: 514
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/630,912
FILING DATE: 04-APR-1996
CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (unaffected)"
/label= 24d2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /label= 24d7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LOCATION: replace(1066, "g")
OTHER INFORMATION: (phenotype
OTHER INFORMATION: (naffect
OTHER INFORMATION: /label= 2t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "a")
                                                                                                                                                                                                                                                                                                                                                                                                                                                         replace(408, "c")
                                                                                                                                                                                                                                                                                  TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 9:
SEQUENCE CHARACTERISTICS:
LENGTH: 1440 base pairs
                                                                                                                                                                                             ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                          1440 base pairs
nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY: allele
LOCATION: replace(414,
OTHER INFORMATION: /phe
OTHER INFORMATION: (una
                                                                                                                                                                                                                                                                                                                                                STRANDEDNESS: single TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: CDS
LOCATION: 222..1268
                                                                                                                                                                                                                                                                                                                                                                            MOLECULE TYPE: CDNA FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OTHER INFORMATION:
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY: allele
LOCATION: replace
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: allele
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                           CLASSIFICATION:
             FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Simi
Matches 1440;
                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURE:
                                                                                                                                                                                                                                                                                                                                          TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181
```

1140

g

δ

원 δ g ŏ

1020 1020

096

900 900

780 780 840

720 720

600 009

```
121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           721
                                                                                                                                                                                                                                                                                                                            õ
                                                                                                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
1321 AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAAACATAGAAAT 1380
                      TGCCTGACGAACTCCTTGATTTTAGCCTTCTCTGTTCATTTCCTCAAAAAGATTTCCCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /phenotype= "normal or wild-type (unaffected)"
/label= 24d2
                                                                                                                                                                                                                                                          APPLICANT: Drayna, Dennis T.
APPLICANT: Feder, John N.
APPLICANT: Golrke, Andreas
APPLICANT: Ruddy, David
APPLICANT: Tsuchihashi, Zenta
APPLICANT: Tsuchihashi, Zenta
APPLICANT: Wolff, Refeatlary Hemochromatosis Gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CUMPRY:
CUMPRY:
CUMPRY:
COMPTER READABLE FORM:
MEDLUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: Windows 95
SOFTWARE: WORDERFECT VERSION B
CURRENT APPLICATION DATA:
FILING DATE: 14-Feb-2000
CLASSIFICATION NUMBER: US/09/503,444A
FILING DATE: 14-Feb-2000
CLASSIFICATION NUMBER: US/09/503,444A
FILING DATE: 14-Feb-1000
PRIOR APPLICATION NUMBER: 08/65,265
FILING DATE: 16-Apr-1996
PRIOR APPLICATION NUMBER: 08/63,673
FILING DATE: 16-Apr-1996
ATTORNEYAGENT INFORMATION:
RECISTRATION NUMBER: 28,462
REFERENCE/DOCKET NUMBER: 8907-0088-999
TELECOMMUNICATION INPORMATION:
RECISTRATION NUMBER: 28,462
REFERENCE/DOCKET NUMBER: 21-790-9090
TELECOMMUNICATION INFORMATION:
TELECHANE: 21-790-9090
                                                                                                                                                                                                                                                                                                                                                                                                                         3: Pennie & Edmonds LLP
1155 Avenue of the Americas
                                                                                                                                                                                           Sequence 9, Application US/09503444A Patent No. 6228594 GENERAL INFORMATION:
                                                                                                                                                                                                                                                  Thomas, Winston J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           replace(408, "c")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEX: 66141
INFORMATION FOR SEQ ID NO: 9: SEQUENCE CHARACTERISTICS:
LENGTH: 1440 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                        CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LOCATION: 222..1268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OTHER INFORMATION:
OTHER INFORMATION:
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURE:
NAME/KEY: allele
LOCATION: replace
                                                                                                                                                                                                                                                                                                                                                                                                                                                          CITY: New York
STATE: New York
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY: CDS
                                                                                                                                                                          US-09-503-444A-9
                                                                                                                                                                                                                                                                                                                                                                                                                                         STREET:
                                                                                                       1381
                                                                      1381
                                   g
                                                                        à
```

```
180
                                                                                                                                                                                                                                                                                                                                                                                                     240
                                                                                                                                                                                                                                                                                                                                                                                                                                                       300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 420
                                                                                                                                                                                                                                                                                        61 ACTAAAGTICIGAAAGACCIGIIGCIIIICACCAGGAAGIIIIACIGGGCAICICCIGAG 120
                                                                                                                                                                                                                                                                                                                                              CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCAAAAG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     720
                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181 AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                       241 CGCCCCTTCTCCTCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAGAAGACAACAGCAGGGCTACTGGAAGTACGGGTATGATGGGCAGGACCACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGGAGTGGGAAAGGCACAAGÀTTCGGGCCAGGCCAGAACAGGGCCTACCTGGAGAGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   781 GCCCTGCACCAGCAGCAGCTGCTGGAGCTGGAGGAGTGTTTTGGACCAACAAGTGC
                                                                                                                                                                                                             ö
                                                                                                                                                                                   Length 1440;
                                                                                                                                                                                                          0; Indels
          /phenotype= "normal or wild-type (unaffected)" /label= 24d7
                                                                                                   wild-type
                                                                                                                                                                                  DB 4;
                                                                                                    or
COTHER INFORMATION: (unaffected)"

COTHER INFORMATION: (unaffected)"

COTHER INFORMATION: (label 24d7

FEATURE:

NAME/KEY: allele

COTHER INFORMATION: /phenotype="normal or other information: /phenotype="normal or other information: /phenotype="normal or other information: /phenotype="normal or other information: /label= 24d1

US-09-503-444A-9
                                                                                                                                                                               100.0%; Score 1440;
100.0%; Pred. No. 0;
iive 0; Mismatches
                                                                                                                                                                             Query Match 100.
Best Local Similarity 100.
Matches 1440; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               781
```

S

```
FEATURE:
                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  241
                                                                                                                                                                                                                                                                                                                                                                                     ŏλ
                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δý
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QΥ
1021 GGATAAACCTTGGCTGTACCCCCTGGGGAAGAGCAGATATACGTGCCAGGTGGAGCACC 1080
                                                                                                                                                                                                                                1081 CAGGCCTGGATCAGCCCTCATTGTGATCTGGAGCCCTCACCGTCTGGCACCCTAGTCA 1140
                                                                                                                                                                                                                                                                                                                                          1201 TAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGCACTACGTCTTAGCTGAAC 1260
                                                                                                            ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT 1020
                                                                                                                                                                GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTGCCAGGTGGAGCACC 1080
                                                                                                                                                                                                                     CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCCACCCTAGTCA 1140
                                                                                                                                                                                                                                                                        TIGGAGICATCAGGGAATIGCIGITITIGICGICATCITIGITCATIGGAATITIGITCA 1200
                                                                                                                                                                                                                                                                                                 1141 TTGGAGTCATCAGTGGAATTGCTGTTTTTGTCGTCATCTTGTTCATTTTTGTTCA 1200
                                                                                                                                                                                                                                                                                                                            TAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGGCACTACGTCTTAGCTGAAC 1260
                                                                                                                                                                                                                                                                                                                                                                                 GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG 1320
                                                                                                                                                                                                                                                                                                                                                                                                AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAAACATAGAAAT 1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                  IGCCIGACGAACICCTIGATITIAGCCTICTGTTCATTTCCTCAAAAAGATTTCCCCA 1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1381 TGCCTGACGAACTCCTTGATTTTTAGCCTTCTGTTCATTTCCTCAAAAAGATTTTCCCCA 1440
                   CCTTGAACTACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG 960
                                                                       CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
                                                                                                                                                                                                                                                                                      APPLICANT: Thomas, Winston J.
APPLICANT: Drayna, Dennis T.
APPLICANT: Feder, John N.
APPLICANT: Gnirke, Andreas
APPLICANT: Ruddy, David
APPLICANT: Tsuchihashi, Zenta
APPLICANT: Wolff, Roger K.
APPLICANT: Wolff, Roger K.
NUMBER OF SEQUENCES: 44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CORRESPONDENCE ADDRESS:
ADDRESSEE: Twomsend and Townsend and Crew LLP
STREET: Two Embarcadero Center, Eighth Floor
CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/652,265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 10, Application US/08652265 Patent No. 6025130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 23-MAY-1996
CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           94111-3834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-08-652-265-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COUNTRY:
                                                                                                                                                                                                                                                                       1141
                                                                                                                                                                                                                                                                                                                            1201
                                                                                                                                                                                                                                                                                                                                                                                 1261
                                                                                                                                                                                                                                                                                                                                                                                                          1261
                                                                                                                                                                                                                                                                                                                                                                                                                                   1321
     841
                                                       901
                                                                                  901
                                                                                                            961
                                                                                                                                     961
                                                                                                                                                                1021
                                                                                                                                                                                                                   1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                               1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                            q
     à
                              g
                                                       ò
                                                                                q
                                                                                                            ò
                                                                                                                                  g
                                                                                                                                                              Qγ
                                                                                                                                                                                      g
                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
```

```
300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61 ACTAAAGTTCTGAAAGACCTGTTGCTTTTCACCAGGAAGTTTTACTGGGCATCTCCTGAG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61 ACTAAAGTTCTGAAAGACCTGTTGCTTTTCACCAGGAAGTTTTACTGGGCATCTCCTGAG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121 CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGGCCCCCCAAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         241 CGGCGCTTCTCCTCCTCGTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             481 TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         541 AAAATCACAACCACGAAGGAGTCCCACACCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             601 AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGGCAGGACCACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        361 TIGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAGAGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  421 GIGIGGAGCCCCGAACTCCAIGGGTITCCAGIAGAAITTCAAGCCAGAIGIGGCIGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 1440;
                                                                                                                                                                                                                                                                                                                             NAME/KEY: allele
LOCATION: replace(1066, "a")
COTHER INFORMATION: /phenotype= "Hereditary Hemochromatosis
OTHER INFORMATION:
COTHER INFORMATION: /label= 24dl
US-08-652-265-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 1438.4;
Pred. No. 0;
0; Mismatches
NAME: Smith, William M.
REGISTRATION NUMBER: 30.223
REFERENCE/DOCKET NUMBER: 17957-000500
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 576-0200
TELEFAX: (415) 576-0300
INFORMATION FOR SEQ ID NO: 10:
SEQUENCE CHARACTERISTICS:
LENGTH: 1440 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best_Local Similarity 99.9
Matches 1439; Conservative
                                                                                                                                                                                                                                                                          CDS
222..1268
                                                                                                                                                                                                                TOPOLOGY: linear MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                        NAME/KEY:
LOCATION:
```

```
NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                   LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-08-652-265-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                           1080
                                                                                                                                                                                                                                                                                                                                                                                              1081 CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCTCGCGCCTCGGCACCCTAGTCA 1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA 1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGGCACTACGTCTTAGCTGAAC 1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG 1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1321 AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGGTTGAACCTAAACATAGAAAT 1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGGACCTACCAGGGCT 1020
                                                                                                                                                                                                                                AATTCTGCCCTGACACACTGGATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGC 720
                                                                                                                       1381 IGCCTGACGAACTCCTTGATTTTAGCCTTCTCTGTTCATTTCCTCAAAAAGATTTCCCCA
              841 CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
                                                                                                                                                                                                                   CCTTGAACTACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG
                                                                                                                                                                                                                                                                                                                           GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTGCCAGGTGGAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                      1141 TTGGAGTCATCAGTGGAATTGCTGTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1381 TGCCTGACGAACTCCTTGATTTTAGCCTTCTCTGTTCATTTCCTCAAAAAGATTTCCCCA
                                                    TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACT
                                                                   GCCCTGCACAGCTGCAGCAGTTGCTGGAGCTGGGGGAGGGTGTTTTGGACCAACAAGTGC
                                                                                                                                                              CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
                                                                                                                                                                                                                                                                                                                                           Hemochromatosis Gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ADDRESSEE: Townsend and Townsend and Crew LLP STREET: Two Embarcadero Center, Eighth Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Drayna, Winston J.
APPLICANT: Drayna, Dennis T.
APPLICANT: Feder, John N.
APPLICANT: Rolirke, Andreas
APPLICANT: Ruddy, David
APPLICANT: Ruddy, David
APPLICANT: Wolff, Roger K.
TITLE OF INVENTION: Hereditary He
NUMBER OF SEQUENCES: 44
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 11, Application US/08652265
Patent No. 6025130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-08-652-265-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1261
                                                                                                                                                                                                                                                                                                                           1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1201
                                                   721
                                                                                                                                   781
                                                                                                                                                              841
                                                                                                                                                                                                                 901
                                                                                                                                                                                                                                            901
                                                                                                                                                                                                                                                                      961
661
                                                                              721
                                                                                                         781
                                                                                                                                                                                                                                                                                            qq
                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
à
                         g
                                                    õ
                                                                                                        ò
                                                                                                                                   셤
                                                                                                                                                              ò
                                                                                                                                                                                     g
                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
```

```
540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GIGIGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61 ACTAAAGTICIGAAAGACCIGIIGCIITICACCAGGAAGITITACIGGGCAICICCIGAG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGGCGCTTGCTGCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   241 CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCGCTTGCTGCGGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAGAGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGGAAATGGGCCCGCGAGCCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 1440;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /phenotype= "Hereditary Hemochromatosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1; Indels
   COMPUTER KEDABLE FORD.

MEDIUM TYPE: Eloppy disk
COMPOTER: IBM PC COMPAILSE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
SOFTWARE: PATENTIN Release #1.0, Version #1.30
CURRENT APPLICATION DATE: 23.MAY-1996
FILING DATE: 23.MAY-1996
CLASSIFICATION: 514
ATTORNEY, AGENT INFORMATION:
NAME: Smith, William M.
REGISTRATION NUMBER: 17957-000500
TELEPHONE: (415) 576-0200
TELEPHONE: (415) 576-0200
INFORMATION FOR SEQ ID NO: 11:
SEQUENCE CHARACTERISTICS:
LENGTH: 1440 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 1438.4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pred. No. 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /label= 24d2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LOCATION: replace(408, "g")
OTHER INFORMATION: /phenotyf
OTHER INFORMATION: /label= 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               99.98;
99.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 99.9
Best Local Similarity 99.9
Matches 1439; Conservative
                                                                                                                                                                                                                                                                                                                                        TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
222..1268
COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME/KEY: allele
LOCATION: replace
                                                                                                                                                                                                                                                                                                                                                                             linear
                                                                                                                                                                                                                                                                                                                                                                                             MOLECULE TYPE:
```

a ŏ g ò qq δ g οý

õ

```
APPLICANT: Ruddy, David
APPLICANT: Tsuchihashi, Zenta
APPLICANT: Wolff, Roger K.
TITLE OF INVENTION: HEREDITARY HEMOCHROMATOSIS GENE PRODUCTS
NUMBER OF SEQUENCES: 76
                                                                                               CORRESPONDENCE ADDRESS:
ADDRESSEE: Pennie & Edmonds LLP
STREET: 1155 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY: CDS
LOCATION: 222..1268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: allele
LOCATION: replace
                                                                                                                                    STREET: 1155 Aver
CITY: New York
STATE: New York
COUNTRY: USA
ZIP: 10036-2811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   α
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1021 GGATAACCTTGGCTGTACCCCTGGGGAAGAGCAGAGATATACGTGCCAGGTGGAGCACC 1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1141 TTGGAGTCATCAGTGGAATTGCTGTTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCA 1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1201 TAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGCACTACGTCTTAGCTGAAC 1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1261 GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGAAAACTAGAGACTCAAAG 1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1321 AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAACATAGAAAT 1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGGACCTACCAGGGCT 1020
                                                                                                                                                                                                                                                                                                                                     780
                                                                                                                                                                                                                                                                                                780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                960
TGGAGTGGGAAAGGACACAAGATTCGGGCCAGGCAGAGAGGGCCTACCTGGAGAGGGACT
                                                                                                                                                                                                                                                                                                                                                                                              601 AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGGGCAGGACCACCTTG
                                                                                                                                                            AATTCTGCCCTGACACACTGGATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGC
                                                                                                                                                                                                                                                                                                                                   721 TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGCCAGAACAGGGCCTACCTGGAGAGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                     841 CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                901 CCTTGAACTACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1081 CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA
                                                          541 AAAATCACAACCACAGCAAGGAGTCCCACACCCTGCAGGTCATCCTGGGGCTGTGAAATGC
                                                                                                                                                                                                                                                                                                                                                                          GCCCTGCACAGCTGCAGCTGCTGGAGCTGGGGAGGTGTTTTGGACCAACAAGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-834-497A-10; Sequence 10, Application US/08834497A; Patent No. 61400305; Patent No. 61400305; PAPLICANT: Thomas, Winston J. APPLICANT: Thomas, Winston J.; APPLICANT: Feder, John N.; APPLICANT: Gnirke, Andreas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           961
                                                                                                                                                                                                                                                                                              721
                                                                                                                                                                                                                   661
                                                                                                                                                                                                                                                                                                                                                                          781
```

g

g

οy

QΥ

q

qq οχ g

δ

g δ g Óγ QQ δ g δ

٥y

61 ACTAAAGTICTGAAAGACCTGTIGCTTTTCACCAGGAAGTTTTACTGGGCATCTCCTGAG 120 121 CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCCAAAAG 180 Gaps Length 1440; LOCATION: replace(1066, "a")
OTHER INFORMATION: /phenotype= "Hereditary Hemochromatosis
OTHER INFORMATION: 1; Indels DB 3; COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: SYSTEM: Windows 95
SOFRATHRE: FastSEQ for Windows Version 2.0b 99.9%; Score 1438.4; 99.9%; Pred. No. 0; 0; Mismatches SOFTWARE: FESTENCY LOW WINDOWS VEISTON CURRENT APPLICATION DAFR:
APPLICATION NUMBER: US/08/834,497A FILING DATE: 04-APR-1997 CLASSIFICATION: 514 PR.OR APPLICATION MUMBER: US 08/652,265 FILING DATE: 23-MAY-1996 CLASSIFICATION DATA: APPLICATION DATA: APPLICATION NUMBER: US 08/632,673 FILING DATE: 16-APR-1996 CLASSIFICATION STA PRIOR APPLICATION DATA: APPLICATION NUMBER: US 08/630,912 FILING DATE: 04-APR-1996 CLASSIFICATION NUMBER: US 08/630,912 FILING DATE: US 08/630,912 FILING DATE: US 08/630,912 ATTORNEY AND STA DATTORNEY AND STA DATES AND STA DATTORNEY AND STA DATTORNEY AND STA DATES AND STA DATE ; OTHER INFORMATION: /label= 24d1 US-08-834-497A-10 NAME: Poissant, Brian M.
REGISTRATION NUMBER: 28,462
REFERENCE/DOCKET NUMBER: 890
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650-493-4935 TELEFAX: 650-493-5556
TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 10:
SEQUENCE CHARATERISTICS: LENGTH: 1440 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear Query Match Best Local Similarity 99.9 Matches 1439; Conservative g ò ŏ

ö

g

```
SAGGAGCCATGGGGCACTACGTCTTAGCTGAAC 1260
                                              HEMOCHROMATOSIS GENE PRODUCTS
                                                                                                                                                                                              Version 2.0b
                                                                                                                                               LP
ericas
                                                                                                                                                                                                       497A
                                                                                                                                                                                                                          , 265
                                                                                                                                                                                                                                             673
                                                                                                                                                                                                                                                                 ,912
                                                                                 7A
```

1260

1320 1320

```
CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA 1140
                                                                                                                                                                                                                                                                                           1321 AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGGAGTTGAACCTAAACATAGAAT 1380
   841 CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG 900
                                                                                                                                                                                                                                                                                                                                                                                                                                 GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG
                                                                                                                                                                                                                                                                                                                                               GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGATATACGTGCCAGGTGGAGCACC
                                                                                                                                           ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT
                                                                                                                                                                                                                                                                                 TAATATTAAGGAAGAGCAGGGTTCAAGAGAGCCATGGGGGCACTACGTCTTAGCTGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Thomas, Winston J.
APPLICANT: Thomas, Winston J.
APPLICANT: Brayna, Dennis T.
APPLICANT: Feder, John N.
APPLICANT: Grirke, Andreas
APPLICANT: Ruddy, David
APPLICANT: Wolff, Roger K.
APPLICANT: Wolff, Roger K.
APPLICANT: Hereditary Hemochromatosis Gen
NUMBER OF SEQUENCES: 44
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE: Pennie & Edmonds LLP
STREET: 1155 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOFTWARE: WordPerfect Version 8
CURRENT APPLICATION DARM:
APPLICATION NUMBER: US/09/503,444A
FILING DATE: 14-Feb-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; Sequence 10, Application US/09503444A; Patent No. 6228594; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/652,265
FILING DATE: 23-May-1996
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: Windows 96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CITY: New York STATE: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 1 CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       10036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-503-444A-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COUNTRY:
                                                                                                    961
                                                                                                                                                                                                                             1141
                                                                                                                                                                                                                                                      1141
                                                  901
                                                                                                                             1021
                                                                                                                                                    1021
                                                                                                                                                                             1081
                                                                                                                                                                                                                                                                               1201
                                                                                                                                                                                                                                                                                                       1201
                                                                                                                                                                                                                                                                                                                                1261
                                                                                                                                                                                                                                                                                                                                                        1261
                                                                                                                                                                                                                                                                                                                                                                                                         1321
                           901
                                                                           196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
                           ŏ
                                                  g
                                                                           ò
                                                                                                  g
                                                                                                                             ð
                                                                                                                                                    g
                                                                                                                                                                            οy
                                                                                                                                                                                                    g
                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                              ŏ
                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                   õ
                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                  ά
                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                 ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  540
                                                                                                                                                                                                                                                      CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                         420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61 ACTAAAGITCIGAAAGACCIGITGCITITCACCAGGAAGITITACIGGGCAICICCTGAG 120
                                                                                                                                                                                                                                                                                          CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTTCCCCGCCCCCCAAAAG 180
                                                                                                                                                                                                                                                                                                                                                                                           CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCGTT 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             361 TIGAAGCITIGGGCTACGIGGAIGACCAGCIGIICGIGITCIAIGAICAIGAGAGICGCC 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AATTCTGCCCTGACACACTGGATTGGAGGAGCAGAACCCAGGGCCTGGCCCACCAAGC 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACT 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGGAGTGGGAAAAGGCACAAGATTCGGGCCAGGCCAGAACAGGGCCTACCTGGAGAGGGACT 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG 900
                                                                                                                                                                   Gaps
                                                                                                                                                                                         9
                                                                                                                                                                                                    AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGGCGAGCCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTATTTCAAGCCAGATGTGGCTGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                                                        AATTCTGCCCTGACACACTGGATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCCTGCACAGCAGCAGTTGCTGGAGCTGGGGAGAGGTGTTTTGGACCAACAAGTGC
                                                                                                                                                                 ;
0
                                                                                                                                         Length 1440;
                       , LOCATION: replace(408, "g")
; OTHER INFORMATION: /phenotype= "Hereditary Hemochromatosis
; OTHER INFORMATION:
; OTHER INFORMATION: /label= 24d2
US-08-834-497A-11
                                                                                                                                                                1; Indels
                                                                                                                                        DB 3;
                                                                                                                                     Score 1438.4;
Pred. No. 0;
0; Mismatches
                                                                                                                                     99.98;
                                                                                                                                     Ouery Match
Best Local Similarity 99.9
Matches 1439; Conservative
NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           841
                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                           241
                                                                                                                                                                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   781
                                                                                                                                                                                                                g
                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 q
```

ò

ò

Qγ

```
1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                      1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1081 CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA 1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTGGAGTCATCAGTGGAATTGCTGTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCA 1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG 1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1321 AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAACATAGAAAT 1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGCCTGACGAACTCCTTGATTTTAGCCTTCTCTGTTCATTTCCTCAAAAAGATTTCCCCA 1440
                                                                                                                                                                                                                                        840
                                                                                                                                                                                                                                                                      840
                                                                                                                                                                                                                                                                                                   900
                                                                                                                                                                                                                                                                                                                                900
                                                                                                                                                                                                                                                                                                                                                                960
                                                                                                                                                                                                                                                                                                                                                                                           960
                    900
                                                   099
                                                                                                                720
                                                                                                                                              720
                                                                                                                                                                            780
                                                                                                                                                                                                         780
                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCCTGCACAGCTGCAGCTGCTGGAGCTGGGGAGGTGTTTTGGACCAACAAGTGC
                                                                                                                                                                                                                                                         CCTTGAACTACTACCCCCGGAACATCACCATGAAGTGGCTGAAGGATAAGCAGTGAATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AATTCTGCCCTGACACACTGGATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGC
                                                                                                                                                                            TGGAGTGGGAAAAGGCACAAGATTCGGGCCAGGACAGAACAGGGCCTACCTGGAGAGGGACT
                                                                                                                                                                                              CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
                                                                                                                                                                                                                                                                                                                                                                                             CCTTGAACTACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTGCCAGGTGGAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGGCAGGACCACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                           ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGGCACTACGTCTTAGCTGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hereditary Hemochromatosis Gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 11, Application US/09503444A
Patent No. 6228594
GENERAL INFORMATION:
APPLICANT: Thomas, Winston J.
APPLICANT: Drayna, Dennis T.
APPLICANT: Grike, Andreas
APPLICANT: Ruddy, David
APPLICANT: Tsuchihashi, Zenta
APPLICANT: Wolff, Roger K.
TILE OF INVENTION: Hereditary Hemoc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 9
US-09-503-444A-11
                                                                                                                                                                                                                                                                    781
                                                                                                                                                                                                                                                                                                   841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1201
                      541
                                                                                                                661
                                                                                                                                                661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1381
                                                    601
                                                                                 601
                                                                                                                                                                              721
                                                                                                                                                                                                           721
                                                                                                                                                                                                                                        781
                                                                                                                                                                                                                                                                                                                                                                901
                                                                                                                                                                                                                                                                                                                                                                                             901
                                                                                                                                                                                                                                                                                                                                                                                                                           196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                    Óγ
                                                                                                                Qγ
                                                                                                                                           g
                                                                                                                                                                              δ
                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                q
                                                                                                                                                                                                                                                                                                                                                                δy
                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                      쉱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ó;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61 ACTARAGTICTGAAAGACCTGTIGCTITITCACCAGGAAGTITIACTGGGGCATCTCCTGAG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  421 GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGCTGCAGC 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          481 TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61 ACTAAAGTICIGAAAGACCIGIIGCIITICACCAGGAAGIITITACIGGGCAICICCIGAG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121 CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCCAAAAG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181 AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGGCGCTTGCTGCTGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     301 CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAGAGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       541 AAAATCACAACCACAGCAAGGAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 1440;
                                                                                                                                                                                                                                                                                                                                                                                      LOCATION: replace(1066, "a")
OTHER INFORMATION: /phenotype= "Hereditary Hemochromatosis
OTHER INFORMATION:
OTHER INFORMATION: /label= 24d1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 1438.4;
Pred. No. 0;
0; Mismatches
                                                                                                                                8907-0088-999
APPLICATION NUMBER: 08/632,673
FILING DATE: 16-Apr-1996
PRICA APPLICATION NOATA:
APPLICATION NUMBER: 08/630,912
FILING DATE: 04-Apr-1996
ATTORNEY/AGENT INFORMATION:
NAME: POISSANT, Brian M.
REGISTRATION NUMBER: 8907-006
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELEPHONE: 212-969-9741
                                                                                                                                                                                                            10:
                                                                                                                                                                                      TELEX: 66141
INFORMATION FOR SEQ ID NO: 10.
SEQUENCE CHARACTERISTICS:
LENGTH: 1440 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity 99.9%;
Matches 1439; Conservative
                                                                                                                                                                                                                                                                                                                                NAME/KEY: CDS
LOCATION: 222..1268
                                                                                                                                                                                                                                                                                                 MOLECULE TYPE: CDNA FEATURE:
                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY: allele
LOCATION: replace
                                                                                                                                                                                                                                                                                      linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-503-444A-10
                                                                                                                                                                                                                                                                                    TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              421
```

à g ò g ò g õ g g

g

ò

g ò g ò 요 ò

```
1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1321 AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAACATAGAAAT 1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 960
                                                                                                                                                                                                                                                                                                                 999
                                                                                                                                                                                                                                                                                                                                          099
                                                                                                                                                                                                                                                                                                                                                                      720
                                                                                                                                                                                                                                                                                                                                                                                             720
                                                                                                                                                                                                                                                                                                                                                                                                                         780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            900
                                                                                                                                                         480
                                                                                                                                                                                   480
                                                                                                                                                                                                            540
                                                                                                                                                                                                                                                              009
                                                                                                                                                                                                                                                                                       600
                                                                                                                                                                                                                                                                                                                                                                                                                                                   780
                                                   360
                                                                                                    420
                                                                                                                               420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTGCCAGGTGGAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TIGGAGICALCAGGAATIGCTGTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TAATATTAAAGGAAGAAGCAGGGTTCAAGAGGAGCCATGGGGCCACTACGTCTTAGCTGAAC
                                                                                                                                                                                                                                                                                                                                CCTTGAACTACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCAATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGCCAGGACCACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                      721 TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGAACAGGGCCTACCTGGAGAGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCGTT
            GTGTGGAGCCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC
                                                                                                                                                                                     421 GIGIGGAGCCCCGAACTCCAIGGGITTCCAGIAGAAITTCAAGCCAGAIGIGGCIGCAGC
                                                                                                                                                                                                             TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                                                                                                                               AAAATCACAACCACAGGAGGAGTCCCACCCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                                                                                                                                                                                                                                                                                      AATTCTGCCCTGACACACTGGATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCAAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                          TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCCTGCACAGCTGCAGCAGTTGCTGGAGCTGGGGAGAGGTGTTTTGGACCAACAAGTGC
                                                   CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                      TTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1141
                                                                                                                                                                                                                                                                                                                    601
                                                                                                                                                                                                                                                                                                                                              601
                                                                                                                                                                                                                                                                                                                                                                          661
                                                                                                                                                                                                                                                                                                                                                                                                 661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1261
                                                                                                                                                                                                                                                                                                                                                                                                                             721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              961
                                                                                                                                 361
                                                                                                                                                                                                                                                                  541
                                                    301
                                                                             301
                                                                                                         361
                                                                                                                                                            421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                      q
                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                  ÓΥ
                                                                                                                                                                                                                                                                                                                                           дq
                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                                                                             q
                                                                                                                                g
                                                                                                                                                            δλ
                                                                                                                                                                                      유
                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61 ACTAAAGTTCTGAAAGACCTGTTGCTTTTCACCAGGAAGTTTTACTGGGCATCTCCTGAG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCCAAAAG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 1440;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LOCATION: replace(408, "9")
OTHER INFORMATION: /phenotype= "Hereditary Hemochromatosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               99.9%; Score 1438.4; 99.9%; Pred. No. 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Mismatches
                                                                                                                                                                                                                                                                                                                                  FILING DATE: 04-Apr-1996
TATORNEY, AGENT INFORMATION:
NAME: POISSANT, Brian M.
REGISTRATION NUMBER: 28,462
REFRERENCE/DOCKET NUMBER: 8907-0088-999
TELECOMUNICATION INFORMATION:
TELEPHONE: 212-790-9090
                                            the Americas
                                                                                                                                                  SOFTWARE: WordPerfect Version 8
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/503,444A
FILLIG DATE: 14 Feb-2000
                                                                                                                                                                                                                          PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/652,265
FILING DATE: 23-May-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/632,673
FILING DATE: 16-Apr-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/630,912
FILING DATE: 04-Apr-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /label= 24d2
                             LLP
                                                                                                                    MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPERATING SYSTEM: WordPerfect Version
               CORRESPONDENCE ADDRESS:
ADDRESSEE: Pennie & Edmonds
STREET: 1155 Avenue of the A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LENGTH: 1440 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEX: 66141
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local Similarity 99.9
Matches 1439; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                             212-869-9741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                          COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY: CDS
LOCATION: 222..1268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OTHER INFORMATION:
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MOLECULE TYPE: CDNA FEATURE:
  NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME/KEY: allele
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         linear
                                         STREET: 1155 Ave CITY: New York STATE: New York
                                                                     New York
                                                                                                                                                                                                                CLASSIFICATION:
                                                                                 USA
                                                                                            ZIP: 10036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEFAX:
                                                                                COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
```

240

300 300 360 360 420 480

480

420

540

540 909 900 999 099 720 780

780

720

840

```
961 ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT 1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121 CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGGCCCCCCAAAAG 180
                                     AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                   GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTATTTCAAGCCAGATGTGGCTGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                                                                                                           TIGAAGCTTIGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAGAGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAAATCACAACCACAGCAGGAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             601 AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGGGCAGGACCACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AATTCTGCCCTGACACACTGGATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCCTGCACAGCTGCAGCTGCTGGAGCTGGGGAGGTGTTTTGGACCAACAAGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             901 CCTTGAACTACCCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTGCCAGGTGGAGCACC
                                                                              61
                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                                                           361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      541
                                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                                                                                   421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    196
                                              g
                                                                                                          g
                                                                                                                                        à
                                                                                                                                                                  qq
                                                                                                                                                                                               ò
                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                   DD
                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                         qq
                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                рp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
1321 AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAACATAGAAAT 1380
                                                         1381 IGCCTGACGAACTCCTTGATTTTAGCCTTCTGTTCATTCCTCAAAAAGATTTCCCCA 1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                           1381 IGCCTGACGAACTCCTTGATTTTAGCCTTCTCTGTTCATTTCCTCAAAAAGATTTCCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ·;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY: allele
LOCATION: replace(408, "g")
OTHER INFORMATION: /phenotype= "Hereditary Hemochromatosis
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LOCATION: replace(1066, "a")
CUHER INFORMATION: /phenotype= "Hereditary Hemochromatosis
OTHER INFORMATION:
CHER INFORMATION: /label= 24d1
US-08-652-265-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                           Sequence 12, Application US/08652265
Patent No. 6025130
GENERAL INFORMATION:
APPLICANT: Thomas, Winston J.
APPLICANT: Drayna, Dennis T.
APPLICANT: Gairke, Andreas
APPLICANT: Gairke, Andreas
APPLICANT: Guirke, Andreas
APPLICANT: Houdy, David
APPLICANT: Wolff, Roger K.
TITLE OF INVENTION: Hereditary Hemochromatosis Gen
NUMBER OF SEQUENCES: 44
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IEM PC Comparible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/652,265
FILING DATE: 23-MAY-1996
CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 3;
                                                                                                                                                                                                                                                                                                                                        ADDRESSEE: Townsend and Townsend and Crew LLP
STREET: Two Embarcadero Center, Eighth Floor
CITY: San Francisco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         99.8%; Score 1436.8;
99.9%; Pred. No. 0;
ive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OTHER INFORMATION: /label= 24d2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTORNEY/AGENT INFORMATION:
NAME: Smith, William M.
REGISTRATION NUMBER: 30,233
REFRENCE/DOCKET 10957
TELECOMMUNICATION INFORMATION:
TELEFAX: (415) 576-0200
TELEFAX: (415) 576-0300
INFORMATION FOR SEQ ID NO: 12:
SEQUENCE CHARACTERISTICS:
LENGTH: 1440 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ouery Match 99.8
Best Local Similarity 99.9
Matches 1438; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: CDS
LOCATION: 222..1268
                                                                                                                                                                                                                                                                                                                                                                                     California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TOPOLOGY: linear MOLECULE TYPE: CDNA FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME/KEY: allele
                                                                                                                                                                                                                                                                                                                                                                                                             ZIP: 94111-3834
                                                                                                                                                                                                                                                                                                                                                                                                    USA
                                                                                                                  RESULT 10
US-08-652-265-12
                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY:
                                                                                                                                                                                                                                                                                                                                                      STREET:
CITY: Sa
                                                                                                                                                                                                                                                                                                                                                                                   STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURE:
               8
                                            à
```

```
TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δğ
CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA 1140
                                                                               1321 AGGGAGTGCATTTATGAGCTCTTCATGTTTTCAGGAGAGAGTTGAACCTAAACATAGAAAT 1380
                                                                                                                                                                                                                                                                               1381 TGCCTGACGAACTCCTTGATTTTAGCCTTCTCTTTCATTTCCTCAAAAAGATTTCCCCA 1440
                                                                                                                                                                                                                                                                                                                                             1081 CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA 1140
                                                                                                                               TAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGCCACTACGTCTTAGCTGAAC 1260
                                                                                                                                                                                               GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGAAAAAAACTAGAGACTCAAAG 1320
                                                                TTGGAGTCATCAGTGGAATTGCTGTTTTTTGTCGTCATCTTGTTCATTGGAATTTTTGTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
APPLICANT: Thomas, Winston J.
APPLICANT: Tedar, Dennis T.
APPLICANT: Feder, John N.
APPLICANT: Feder, John N.
APPLICANT: Frack, Andreas
APPLICANT: Tsuchihashi, Zenta
APPLICANT: Wolff, Roger K.
TITLE OF INVENTION: HERBITARY HEMOCHROMATOSIS GENE PRODUCTS
NUMBER OF SEQUENCES: 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM:
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: Tab PC compatible
COMPUTER: FastSEQ for Windows Version 2.0b
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8907-0056-999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: US 08/652,265
FILING DATE: 23-MAY-1996
CLASSIFICATION: 514
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/632,673
FILING DATE: 16-APR-1996
CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        E: Pennie & Edmonds LLP
1155 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: US/08/834,497A
FILING DATE: 04-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        us 08/630,912
                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 12, Application US/08834497A Patent No. 6140305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME: Poissant, Brian M.
REGISTRATION NUMBER: 28,462
REFERENCE/DOCKET NUMBER: 896
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650-493-4935
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08
FILING DATE: 04-APR-1996
CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CORRESPONDENCE ADDRESS: ADDRESSE: Pennie &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CITY: New York
STATE: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            USA
                                                                                                                                                                                                                                                                                                                                                                                                                            US-08-834-497A-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STREET:
                                                                                                                                                                                               1261
                                                                                                                                                                                                                                                                                             1321
 1081
                                                                                                                               1201
                                 g
                                                                                           g
                                                                                                                             Qγ
                                                                                                                                                              a
                                                                                                                                                                                              δλ
                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                            QQ
 δ
```

```
180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGCGCAGGACCACCTTG 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61 ACTAAAGTTCTGAAAGACCTGTTGCTTTTCACCAGGAAGTTTTACTGGGCATCTCCTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .21 CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCCAAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        241 CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAAATCACAACCACAGGAAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181 AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              301 CACACTCTCTGCACTACCTCTTCATGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GIGIGGAGCCCCGAACICCAIGGGITICCAGIAGAAITITCAAGCCAGAIGIGGCIGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                 Length 1440;
                                                                                                                                                                                         LOCATION: replace(408, "g")
OTHER INFORMATION: /phenotype= "Hereditary Hemochromatosis
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                 1066, "a")
/phenotype= "Hereditary Hemochromatosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                              2;
                                                                                                                                                                                                                                                                                                                                                                                                                 DB 3;
                                                                                                                                                                                                                                                                                                                                                                                                               Ouery Match 99.8%; Score 1436.8; Best Local Similarity 99.9%; Pred. No. 0; Matches 1438; Conservative 0; Mismatches
                                                                                                                                                                                                                                                      /label= 24d2
                                                                                                                                                                                                                                                                                                                                                  /label= 24d1
                                                                                                                                                                                                                                                                                                    LOCATION: replace(1066, OTHER INFORMATION: /phen OTHER INFORMATION: OTHER INFORMATION: /labe
                                SEQUENCE CHARACTERISTICS:
LENGTH: 1440 base pairs
TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO:
                                                                TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                             CDS 222..1268
                                                                                                                                                                                                                                                        OTHER INFORMATION: FEATURE:
                                                                                                          MOLECULE TYPE: CDNA
                                                                                               linear
                                                                                                                                                                                        NAME/KEY: allele
LOCATION: replace
                                                                                                                                                                                                                                                                                       NAME/KEY: allele
                                                                                                                                           NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                    US-08-834-497A-12
                                                                                                 TOPOLOGY:
```

```
121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1141 TTGGAGTCATCAGTGGAATTGCTGTTTTTGTCGTCATCTTGTTCATTGGAATTTGTTCA 1200 [1141 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       961 ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT 1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1021 GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTGCCAGGTGGAGCACC 1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1021 GGATAACCTTGGCTGTACCCCTGGGGAAGAGCAGAGATATACGTACCAGGGGGGGCCC 1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1081 CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA 1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1081 CAGGCCTGGATCAGCCCTCATTGTGATCTGGGAGCCTCACCGTCTGGCACCCTAGTCA 1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1201 TAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGGCACTACGTCTTAGCTGAAC 1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG 1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAAACATAGAAAT 1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1321 AGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAACATAGAAT 1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1381 IGCCIGACGAACTCCTIGATITIAGCCTICTCTGTTCATTTCCTCAAAAAGATTTCCCCA 1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         960
601 AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGCCAGGACCACCTTG 660
                                                      CCTTGAACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     721 TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACT
                                                                                                                                                                                                                                                                                        GCCCTGCACAGCTGCAGCAGTTGCTGGAGCTGGGGAGGGTGTTTTGGACCAACAAGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 12, Application US/09503444A
Patent No. 6228594
GENERAL INFORMATION:
APPLICANT: Thomas, Winston J.
APPLICANT: Feder, John N.
APPLICANT: Raddy, David
APPLICANT: Tsuchihashi, Zenta
APPLICANT: Tsuchihashi, Zenta
APPLICANT: Wodyf, Roger K.
TITLE OF INVENTION: Hereditary Hemochromatosis Gene
NUMBER OF SEQUENCES: 44
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pennie & Edmonds LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-503-444A-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STREET:
CITY: No
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1321
                                                                                                                                                                                                                                                                                        781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1261
                                                                                                                                         γδ
                                                         ò
                                                                                                             g
                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       å
```

```
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61 ACTAAAGTICTGAAAGACCTGTTGCTTTTCACCAGGAAGTTTTACTGGGCATCTCCTGAG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGGTTTCCCCGGCCCCCAAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ;
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 99.8%; Score 1436.8; DB 4; Length 1440; Best Local Similarity 99.9%; Pred, No. 0; Matches 1438; Conservative 0; Mismatches 2; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LOCATION: replace(408, "g")
OTHER INFORMATION: /phenotype= "Hereditary Hemochromatosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LOCATION: replace(1066, "a")
COTHER INFORMATION: /phenotype= "Hereditary Hemochromatosis
OTHER INFORMATION: /label= 24d1
US-09-503-444A-12
                                                                                                                                                                                                                                                                                                                                                                                                                                      8907-0088
                                                                                                                    омыЕR: US/09/503,444A
14-Feb-2000
1.
                                                                                                                              APPLICATION NOMBER: US/09/503,444
FILING DATE: 14-Feb-2000
CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/652,265
FILING DATE: 23-May-1996
FILING DATE: 13-May-1996
FILING DATE: 16-Apr-1996
FILING DATE: 16-Apr-1996
FILING DATE: 16-Apr-1996
FILING DATE: 04-Apr-1996
APPLICATION NUMBER: 08/630,912
FILING DATE: 04-Apr-1996
ATTORNEY AGENT INFORMATION:
                                                      COMPUTER: IBM PC Compatible OPERATING SYSTEM: Windows 95 SOFTWARE: WordPerfect Version 8 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /label= 24d2
                                                                                                                                                                                                                                                                                                                                                                                          NAME: Poissant, Brian M.
REGISTRATION NUMBER: 28,462
REFERENCE/DOCKET NUMBER: 8907
TELECOMMUNICATION INFORMATION:
TELEPHONE: 212-90-9090
TELEFAX: 212-869-9741
                                                                                                                                                                                                                                                                                                                                                                                                               28,462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           INFORMATION FOR SEQ ID NO: 1
SEQUENCE CHARACTERISTICS:
LENGTH: 1440 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
ZIP: 10036
COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LOCATION: 222..1268 FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OTHER INFORMATION:
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: allele
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURE:
NAME/KEY: allele
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY: CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEX: 66141
                                       MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
```

us-09-497-957-9.rni

	QY 1321 Db 1321	Qy 1381	Db 1381	RESULT 13 US-09-277-	; Sequence				Ø	; LENGTH ; TYPE: ; ORGANI	0-8	9 %	7 6		Qy 282	Db 61	Qy 342	Db 121		Qy 462	Db 241	Qy 522	Db 301	Db 361	Qy 642	Db 421	Qy 702	
_			<del>-</del>	<del>.</del>					<del></del>										-									
	CGGCGCTTCTCCTCGTGATGCTTTTGCAGACCGGGGTCCTGCAGGGGGGCGCTTGCTGCTT 300	CTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGGGCGCTTGCTT		4	AGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATGATGAGGTCGCC 420	GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC 480 	TGAGTCAGAGTCTGAAAGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG 540		AAAICACAACAACAACAAGAGAGTCCCACACTGCAGGTCATCCTGGGCTGTGAAATGC 600 	AAGAAGACAATACCGAGGGTACTGGAAGTACGGGTATGAGGGGAGGACCACCTTG 660 	r) r)	TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGCAGAGAGGCCTACCTGGAGAGGGCT 780 		GCACAGCTGCAGCAGTTGCTGGAGCTGGGGAGGTGTTTTGGACCAACAAGTGC 840	CTCCTTIGGIGAAGGIGACACAICAIGIGACCICTICAGIGACCACICIACGGIGICGGG 900 	ריז		ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACTACCAGGGCT 1020	102	GGATAACCTTGGCTGTATCCCCTGGGGAAGACAGAGATATACGTGCCAGGTGGAGCACC 1080 					TAATATTAAGGAAGGAGGAGTTCAAGAGCAGCCATGGGGAACTACGTCTTAGCTGAAC 1260 			
	241 CGGC		301 CACA		19	421 GTGT      421 GTGT	E4		541 AAAA      541 AAAA	601 AAGA      601 AAGA	661 AATT      661 AATT	721 TGGA      721 TGGA		781 GCCC	841 CTCC             841 CTCC	901 CCTT	901 CCTT			1021 GGATA           1021 GGATA	1081 CAGG	1081 CAGG	1141 TTGG		1201 TAAT	1261 GTGAC	11111 1261 GTGAG	
	Oy d	δλ	qq	oy q	α Ω	oy ob	δŏ	a d	8 8	Qy	Q7 Dp	Qy Db	δο	a	oy Oy	φy	අ	δ	<u>a</u> :	g v	Qy	qq	oy g	3 6	g G	QY	qq	

```
281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATGGGCCCGCGAGCCAGGCCGGCGCTTCTCCTCTGATGCTTTTGCAGACCGCGGTCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         agccagatgtggctgcagctgagtcagagtctgaaagggtgggatcacatgttcactgtt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CAGGGGGCGCTTGCTGCGTTCACACTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TATGATCATGAGAGTCGCCGTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGCCAGATGTGGCTGCAGCTGAGTCTGAAAGGGTGGGATCACATGTTCACTGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGGGCCTGGCCCACCAAGCTGGAAAAGGCACAAGATTCGGGCCAGGCAGAACAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GACCTTGGTCTTTCCTTGTTTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GACTICIGGACTATTATGGAAAATCACAACCACAGGAAGGAGTCCCACACCCTGCAGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATCCTGGGCTGTGAAATGCAAGAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GATGGGCAGGACCACCTTGAATTCTGCCCTGACACTGGATTGGAGAGCAGAACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 2506;
                                                                                                                                                                                   ANT: Rothenberg, Barry E.

ANT: Sawada-Hirai, Ritsuko
ANT: Barron, James C.

OF INVENTION: MUTATIONS ASSOCIATED WITH IRON DISORDERS
REFERENCE: 10653/002001

VI APPLICATION NUMBER: US/09/277,457

VI FILING DATE: 1999-03-26

VO SEQ ID NOS: 30

NRE: FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                      ION: (0)...(0)
INFORMATION: Missense mutation at nucleotide 314
-457-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                          4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                      84.7%; Score 1219; D
100.0%; Pred. No. 0;
ive 0; Mismatches
                                                                                                                                             te 1, Application US/09277457
No. 6355425
INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                               ISM: Homo Sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Match
ocal Similarity
s 1219; Conserva
                                                                                                                                                                                                                                                                                                                                                                         KEY: mutation
                                                                                                                                                                                                                                                                                                        NO 1
2H: 2506
                                                                                                                                                                                                                                                                                                                                    DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
```

ő

```
CAAAACTAGAGACTCAAAGAGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGT 1361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1081 caaaactagagactcaaagagggagtgcatttatgagctcttcatgtttcaggagagagt 1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1122 CCGTCTGGCACCCTAGTCATTGGAGTCATCAGTGGAATTGCTGTTTTTGTCGTCATCTTG 1181
                                                                                                                                                                                                                                                                                                                                                                                          1182 TTCATTGGAATTTTGTTCATAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGG 1241
                                                                                                                                                                                                                                                                                                                                                                                                                                              CACTACGTCTTAGCTGAACGTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGA 1301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGAACCTAAACATAGAAATTGCCTGACGAACTCCTTGATTTTAGCCTTCTCTCTGTTCATTT 1421
                                                                                                                                                                 1001
                                                                                                                                                                                                                        1061
                                                                                                                                                                                                                                                                              1062 ACGIGCCAGGIGGAGCACCCAGGCCIGGAICAGCCCCTCATIGIGATCIGGGAGCCCTCA 1121
                                                                                                                                                                                                                                                 781 gatgggacctaccagggctggataaccttggctgtaccccctggggaagagcagagatat 840
                                                                                                                                                                                                                                                                                                        900
                                                                                                                                                                                                                                                                                                                                                              960
                                                    881
                                                                                                                                                               GATGGGACCTACCAGGGCTGGATAACCTTGGCTGTACCCCTGGGGAAGAGCAGAGATAT
                                                                                                                                                                                                                                                                                                                                                  GTTTTGGACCACACAGTGCCTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTG
GCCTACCTGGAGAGGGACTGCCCTGCACAGCTGCAGCAGTTGCTGGAGCTGGGGAGAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Thomas, Winston J.
APPLICANT: Drayna, Dennis T.
APPLICANT: Feder, John N.
APPLICANT: Feder, John N.
APPLICANT: Ruddy, David
APPLICANT: Ruddy, David
APPLICANT: Tsuchthashl, Zenta
APPLICANT: Wolff, Roger K.
TTLE OF INVENTION: Hereditary Hemochromatosis Gene
NUMBER OF SEQUENCES: 44
CORRESPONDENCE ADDRESS:
ADDRESSE: Townsend and Townsend and Crew LLP
STREET: Two Embarcadero Center, Eighth Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 14
US-08-652-265-1
; Sequence 1, Application US/08652265
; Patent No. 6025130
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCTCAAAAGATTTCCCCA 1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ZIP: 94111-3834
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                 1242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1422
 762
                                                     822
                                                                                                                                                                                                                          1002
                                                                                                                                                                                                                                                                                                                                                               901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1362
                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                        g
                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                     ζ
                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                        ò
 ð
                          g
                                                     ò
                                                                              g
                                                                                                          ò
                                                                                                                                  원
                                                                                                                                                                  Š
```

```
/note= "No. 6025130mal or wild-type (unaffected)
Hereditary Hemochromatosis (HH) gene
allele"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               genomic
24d2(C)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY: CDS
LOCATION: join(361..436, 3762..4025, 4235..4510, 5606..5881
LOCATION: 6040..6153, 7107..7147)
OTHER INFORMATION: /product= "Hereditary Hemochromatosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                for
allele
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        24d1(G)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 10825;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME/KEY: -
LOCATION: 140..7319
OTHER INFORMATION: /note= "start and stop positions
OTHER INFORMATION: normal or wild-type (unaffected)
OTHER INFORMATION: cDNA (SEQ ID NO:9)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OTHER INFORMATION: /note= "start and stop positions OTHER INFORMATION: normal or wild-type (unaffected) OTHER INFORMATION: sequence surrounding variant for OTHER INFORMATION: allele (SEQ ID NO:41)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note= "start and stop positions
normal or wild-type (unaffected)
sequence surrounding variant for
allele (SEQ ID NO:20)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /phenotype= "normal or wild-type (unaffected)" /label= 24d7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY: allele
LOCATION: replace(3872, "c")
COTHER INFORMATION: /phenotype= "normal or wild-type
OTHER INFORMATION: (unaffected)
OTHER INFORMATION: /label= 24d2
FEATURE:
FRATURE: allele
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /phenotype= "normal or wild-type (unaffected)"
/label= 24d1
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOCTWARE: Patentin Release #1.0, Version #1.30
CURREWT APPLICATION DATE:
APPLICATION NUMBER: US/08/652,265
FILING DATE: 23-MAY-1996
CLASSIFICATION: 514
ATTORNEY/AGENT INFORMATION:
NAME: SMITH, William M.
REGISTRATON NUMBER: 17957-000500
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELEPAX: (415) 576-0200
TELEPAX: (415) 576-0300
INFORMATION FOR EQUID NO: 1:
SEGUING REAL 10825 base pairs
TYPE: NUCLEISTICS:
LENGTH: 10825 base pairs
TOPOLOGY: linear
MALECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 321; DB 3;
Pred. No. 8.9e-83;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         replace(5834, "g")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          replace(3878, "a")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            22.3%;
72.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY: 5507..6023
COCATION: 5507..6023
OTHER INFORMATION: //
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LOCATION: 3852..3891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OTHER INFORMATION:
OTHER INFORMATION:
OTHER INFORMATION:
OTHER INFORMATION:
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY: allele
LOCATION: replace(5
OTHER INFORMATION:
OTHER INFORMATION:
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OTHER INFORMATION:
OTHER INFORMATION:
OTHER INFORMATION:
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LOCATION: replace(OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OTHER INFORMATION:
OTHER INFORMATION:
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURE:
NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OTHER I
```

ò g à q ö g ò qq

δ g δ g

g

ŏ

a δ 셤 ŏ g ŏ

ò

δ

```
3762 GITCACACICTCTGCACIACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCT 3821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3822 TGTTTGAAGCTTTGGGCTACGTGGACCAGCTGTTCGTGTTCTATGACATGAGAGTC 3881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        358 TGTTTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAGAGTC 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        298 GTTCACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCT 357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAMENON DELLICOLD IN CONTROL OF THE INFORMATION: JOIN (361..436, 3762..4025, 4235..4510, 5606..5881, LOCATION: 6040..6153, 7107..7147)

OTHER INFORMATION: OTHER INFORMATION: Mutation" Mutation" OTHER INFORMATION: OTHER INFORMATION: Gene 24d1 allele" FEATURE:

NAME/KEY: LOCATION: 140..7319

OTHER INFORMATION: Anote= "start and stop positions for OTHER INFORMATION: 24d1 allele cDNA (SEQ ID NO:10)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   22.3%; Score 321; DB 3; Length 10825; 72.1%; Pred. No. 8.9e-83; ive 0; Mismatches 0; Indels 209;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /phenotype= "Hereditary Hemochromatosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 10825;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LOCATION: 3852..3891
OTHER INFORMATION: /note= "start and stop positions for
OTHER INFORMATION: genomic sequence surrounding variant
OTHER INFORMATION: for 24d2(C) allele (SEQ ID NO:41)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note= "start and stop positions for
genomic sequence surrounding variant
for 24d1(A) allele (SEQ ID NO:21)"
                                                                                         MCDLUM TIFE: FLOPEY GLES.

COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/NS-DOS
SOCTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATE:
APPLICATION NUMBER: US/08/652,265
FILING DATE: 23-MAY-1996
CLASSIFICATION: 514
ATTORNEY/AGENT INFORMATION:
NAME: Smith, William M.
REGISTRATION NUMBER: 17957-000500
TELEPHONE: (415) 576-0300
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 10825 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /label= 24d1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LOCATION: replace(5834, "a")
OTHER INFORMATION: /phenotype
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TOPOLOGY: linear MOLECULE TYPE: DNA (genomic)
                                                     COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5507..6023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OTHER INFORMATION:
FEATURE:
NAME/KEY:
LOCATION: 5507..602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OTHER INFORMATION:
COTHER INFORMATION:
US-08-652-265-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OTHER INFORMATION:
OTHER INFORMATION:
California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY: allele
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity
Matches 540; Conserv
                                     94111-3834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURE:
NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4421
                                                                                                                                                   3822 TGTTTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAGGTC 3881
                                                                                                                                                                                                                                                                                                                      4062 CAGAGCTTTTCATCTTTTCATGCATCTTGAAGGAAACAGCTGGAAGTCTGAGGTCTTGTG 4121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4122 GGAGCAGGGAAGAGGAAGGAATTTGCTTCCTGAGATTTGGTCCTTTGGTCCTTGGGGATGGTGG 4181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    748
                                                                                                                                                                                                                                   1002 IGGAAATCACAACCACAGCAAGGGTAIGIGGAGAGGGGGCCTCACCTICCIGAGGTIGI 4061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1182 AAATAGGGACCTATTCCTTTGGTTGCAGTTAACAAGGCTGGGGATTTTTCCAGAGTCCCA 4241
                                                              629 GAAGTACGGGTATGATGGCCAGGACCACCTTGAATTCTGCCCTGACACTGGATTGGAG 688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ----- 560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         569 CACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAGGGCTACTG 628
                                                                                                                                                                                                             GCCGTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGC 477
                                                                                                                                                                                                                                                                                             AGCTGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTA 537
                                                                                                                          TGTTTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAGAGTC 417
                                          GITCACACICICICGCACIACCICTICAIGGIGCCICAGAGCAGGACCIIGGICITICCI 357
  Indels 209; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    561 ------GAGTCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              689 AGCAGCAGAACCCAGGGCCTGGCCCACCAAGCTGGAGTGGGAAAGGCACAAGATTCGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   749 CAGGCAGAACAGGGCCTACCTGGAGAGGGACTGCCCTGCACAGCTGCAGCTGCTGGA
                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Tsuchihashi, Zenta
APPLICANT: Wolff, Koger K.
ATTLE OF INVENTION: Hereditary Hemochromatosis Gene
NUMBER OF SEQUENCES: 44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEE: Townsend and Townsend and Crew LLP: Two Embarcadero Center, Eighth Floor San Francisco
  ö
  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4482 GCTGGGGAGAGGTGTTTGGACCAACAAG 4510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      809 GCTGGGGAGAGGTGTTTTGGACCAACAAG 837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 3, Application US/08652265
Patent No. 6025130
GENBEL INFORMATION:
APPLICANT: Thomas, Winston J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Drayna, Dennis T.
Feder, John N.
Gnirke, Andreas
Ruddy, David
Tsuchihashi, Zenta
  ö
  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        561 -----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-08-652-265-3
    540;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CITY:
    Matches
                                            298
                                                                                                                                                                                                               418
                                                                                                                                                                                                                                                                                                478
                                                                                                                                                                                                                                                                                                                                                                                  538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     561
                                                                                    3762
                                                                                                                             358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              pp
```

1;

Gaps

477 3941	537	4001	260	4061	260	4121	260	4181	268	4241	628	4301	889	4361		4421	_	4481		
									GAGTCCCA						CTGGAGTGGGAAAGGCACAAGATTCGGGC 748		TGCCCTGCACAGCTGCAGCAGTTGCTGGA 808		837	4510
GCCGTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGC		AGCTGAGTCAGAGTCTGAAAGGGTGGGGATCACATGTTCACTGTTGACTTCTGGACTATA		TITITITITITITITITITITITITITITITETEGAGAGGGGCCTCACCTTCCTGAGGTTGT		CAGAGCTITTCATCTTTTCATGCATCTTGAAGGAAACAGCTGGAAGTCTGAGGTCTTGTG		GGAGCAGGGAAGAAAGAATTTGCTTCCTGAGATCATTTGGTCCTTGGGGATGGTGG			CACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAGTACCGAGGGCTACTG	CACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAGGGCTACTG	GAAGTACGGGTATGATGGGCAGGACCACCTT	GAAGTACGGGTATGATGGGCAGGACCACCTTGAATTCTGCCCTGACACTGGATTGGAG	AGCAGCAGAACCCAGGGCCTGGCCCCACCAAGG	AGCAGCAGAACCCAGGGCCTGGCCCACCAAGCTGGAGAAAGGCACAAGATTCGGGC	CAGGCAGAACAGGGCCTACCTGGAGGGACTGCCCTGCAGAGCTGCAGCAGTTGCTGGA	CAGGCAGAACAGGGCCTACCTGGAGAGGGACTGCCCTGCACAGCTGCAGGGCAGAGTGCTGGA		GCTGGGGAGAGGTGTTTGGACCAACAAG 4:
418	478	3942	538	4002	561	4062	561	4122	561	4182	569	4242	629	4302	689	4362	749	4422	809	4482
oy Op	ΟŸ	qq	ογ	QQ	δ	gg	Οy	qq	Qy	QΩ	Oy	QQ	οy	qq	ογ	qq	ογ	q	δý	đ

Search completed: June 19, 2002, 08:40:03 Job time: 7288 sec

us-09-497-957-12.rge

Perfect score:

Sednence:

OM nucleic

:uo

Scoring table:

Searched:

Database

Sequence Sequence Sequence

Sequence Sequence Homo sapien

Sequence

```
AF149804 Homo sapi
AF176534 Rattus no
AF115264 Homo sapi
AF144243 Homo sapi
AR117791 Sequence
AR117792 Sequence
                                                                                                                                                                                                                                                            AJ001517 Rattus no
U66849 Mus musculu
AF079409 Homo sapi
AJ250635 Homo sapi
AF150664 Homo sapi
AF44240 Homo sapi
                                                                                                               AJ24335 Homo sapi
AF07407 Homo sapi
AY007541 Ceratothe
AY007543 Dicerorhi
AY007544 Rhinocero
AX007542 Diceros b
AJ249336 Homo sapi
AF144242 Homo sapi
AF079408 Homo sapi
                                                                                                                                                                                                                                                                                                                                         AF008587 Rattus no
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Y09800 H.sapiens |
AR117789 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AR149460 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Unknown.
Unknown.
Unclassified.
Unclassified.
Unclassified.
Unclassified.
Thomas, W.J., Drayna,D.T., Feder,J.N., Gnirke,A., Ruddy,D.,
Tsuchihashi,Z. and Wolff.R.K.
Hereditary hemochromatosis gene products
Hereditary hemochromatosis gene products
Patent: US 6140305-A 12 31-OCT-2000;
Location/Qualifiers

1. 1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AL359892 F
AR036572 S
AR036573 S
                                                                                                                                                                                                                                                                                                                                                                                                                                   AR149461 8
AR149462 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AR117790
AR149459
AR117796 AR149466 AR117794 AR117795 AR149464 AR117793 AR117793 AR149463 UG0319 HOI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 1440;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 12 from patent US 6140305. AR117796 AR117796.1 GI:1409870?
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 1440;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ALIGNMENTS
                                                                                                                                                                                                                                                             RNHERHAEM
MMU66849
AF079409
HSAZ50635
AF150664
AF144240
AF008587
AF149804
 AR117796
AR149466
AR117794
AR117795
AR149465
AR149463
AR117793
AR117793
AR149463
AR149463
                                                                                                                                                                                                                          HSA249337
AF144242
AF079408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AR117789
AR117790
AR149459
AR149460
                                                                                                                                                        AY007541
AY007543
AY007544
AY007542
                                                                                                                                                                                                             HSA249336
                                                                                                                                                                                                                                                                                                                                                                                                AF144243
AR117791
                                                                                                                                                                                                                                                                                                                                                                                                                                   AR149461
AR149462
AF144241
HSHLAH2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%;
                                                                                                                                                                                                                                                                                                                                             10
                                                                                                                                                                                                                                                                                                                                                                      2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12146
193752
246240
246240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         10825
10825
10825
10825
                                                                                                                                                                                                                                                                                                                                 686
789
804
804
819
735
735
10825
10825
10825
492
                                         14440
114440
114440
114440
112080
112080
11319
11319
11319
11319
11319
11319
11319
11319
11319
11319
11319
11319
11319
11319
11319
11319
11319
11319
11319
11319
11319
11319
11319
11319
11319
                                                                                                                                                                                                                                                                                                     809
  Unknown.
                                                                                                                                                                                                                                                                                                                                                                                                                                                    320.4
320.4
330.4
319.4
319.4
319.4
319.4
319.4
                                                                 14436.4
14436.8
11436.8
11195.8
11185.8
8993.8
8993.6
8993.6
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
700.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
AR117796
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
      June 19, 2002, 08:23:48; Search time 3675.59 Seconds (without alignments) 8198.470 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                1440
1 GGGGACACTGGATCACCTAG......TCCTCAAAAAGATTCCCCA 1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Description
                 GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                            1797656 segs, 10463268293 residues
                                                                                                                                                                                                                                                                      Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUMMARIES
                                                                                                                                                                                                                                                                                                                                   Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                     nucleic search, using sw model
                                                                                                                                                                                                     IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               em_htg_inv:*
em_htg_other:*
em_htgo_inv:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             П
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      em_htg_hum:*
                                                                                                                                                                                                                                                                                             Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                 US-09-497-957-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query
Match Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gb_ro:*
gb_sts:*
gb_un:*
gb_vi:*
em_ba:*
em_fun:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            em_pat:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                em_sts:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      em_pl:*
em_ro:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            em_un:*
em_vi:*
                                                                                                                                                                                                                                                                                                                                                                                                    gb_ba:*
gb_htg:*
gb_om:*
gb_ow:*
gb_pt:*
gb_pt:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           em_in:*
em_mu:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  еm_or:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                em_ov:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     em_om:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           *: \d_me
                                                                                                                                                                                                                                                                                                                                                                                         GenEmbl:*
```

Sequence Sequence Homo sapi

Sequence Sequence Sequence

PAT 16-MAY-2001

Score

		1201	138		AR149466 1440 bp	SON		AUTHORS Thomas,W.J., Drayna,D.T., Feder,J.N., Gnirke,A., Ruddy,D., Tsuchihashi,Z. and Wolff,R.K. TITLE Method for determining the presence or absence of a hereditary hemochromatosis gene mutation	JOURNAL Patent: US 6228594-A 12 08-MAY-2001; FEATURES Location/Qualifiers Source 11440 /organism="unknown"	BASE COUNT 348 a 354 c 407 g 331 t ORIGIN	Query Match 100.0%; Score 1440; DB 6; Length 1440; Best Local Similarity 100.0%; Pred. No. 0; Matches 1440; Conservative 0; Mismatches 0; Indels 0; Gaps 0;	QY 1 GGGGACACTGGATCACCTAGTGTTTCACAAGCAGGTACCTTCTGCTGTAGGAGAGAGA	Qy 61 ACTAAAGTTCTGAAAGACCTGTTGCTTTTCACCAGGAAGTTTTACTGGGCATCTCCTGAG 120	Qy 121 CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCAAAAG 180 	QY 181 AAGCGGAGATTTAACGGGACGTGCGGCCAGAGCTGGGGAAATGGCCCGCGAGCCAGC 240	QY 241 CGGCGCTTCTCCTCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGCCCTTGCTGCTGCTT 300
Best Loc Matches 1	OY 61 ACTAAAGTTCTGAAAGACCTGTTGCTTTTCACCAGGAAGTTTTACTGGGCATCTCTGAG 120		241	OY 301 CACACTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGCACCTTGGTCTTTCCTTGT 360	QY 361 TTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATGATGAGAGTCGCC 420	Qy 421 GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGCTGCAGC 480	Qy 481 TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG 540	QY 541 AAAATCACAACCACAGCAAGGAGTCCCACCCTGCAGGTCATCCTGGGCTGTGAAATGC 600 	QY 601 AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGGATGG	Oy 661 AATTCTGCCCTGACACTGGATTGGAGAGCAGCAGCAGGGCCTGGCCCACCAAGC 720 	Oy         721         TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGCAGACAGGGCCTACCTGGAGAGGACT         780           IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Qy 781 GCCCTGCAGCTGCAGCAGTTGCTGGAGCTGGGGAGGGTGTTTTGGACCAACAAGTGC 840 	Qy       841 CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG       900         IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	OY 901 CCTTGAACTACTACCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG 960 	Oy         961 ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGATGGGATGGGACTACCAGGGCT         1020           Db         961 ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGATGGGATGCGAACCAGGGCT         1020	8=

m

301 361 361 421 481 481 541 601 601	CACACTCTCTCTTTTTTTTTTTTTTTTTTTTTTTTTTT	- · · · · · · · · · · · · · · · · · · ·
361 421 421 481 541 601 661	2 4 4 4 6 8 8 8	
421 481 481 541 601 601 661	4 48	
481 481 541 601 601 661		
541 541 601 661 661	TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG 540 	
601 601 661	AAAATCACAAACGAAAGGAAGGAGTCCCACACCCTGCAGGCCATCTGGGCTGTGAAATGC 600 	
661	aagaagacaacagtaccgagggctactggaagtacgggtatgatgggcaggaccaccttg 660 	
	AATTCTGCCCTGACACACTGGATTGGAGAGCAGCAGCAGGGCCTGGCCCACCAAGC 720 	
Oy 721 TG 11 Db 721 TG	GGAGTGGGAAAGGCACAAGATTCGGGCCAGGCGGAGAACAGGGCCTACCTGGAGAGGGACT 780 	
Qy 781 GC     1 Db 781 GC	CCCTGCACAGCTGCAGTTGCTGGAGCTGGGGAGAGTGTTTTGGACCAAGTGC 840 	
Qy 841 CT         Db 841 CT	CTCCTTTGGTGAAGGTGACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG 900 	
Oy 901 CC         Db 901 CC	CTIGAACTACTACCCCGGAACAICACCATGAAGIGGCTGAAGGATAAGCAGCGAAIGG 960 	
Qy 961 AT     Db 961 AT	atgccaaggagttcgaacctaaagacgtattgcccaatggggatgggacctaccagggct 1020 	
Qy 1021 GC   1   Db 1021 GC	GATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGATATACGTACCAGGTGGAGCACC 1080 	
Oy 1081 CP       Db 1081 CP	CAGGCCTGGATCAGCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA 1140 	
OY 1141 TO 	TTGGAGTCATCAGTGGAATTGCTGTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCA 1200 	
Qy 1201 TR 	TAATATTAAGGAAGGCAGGGTTCAAGAGGAGCCATGGGGCACTACGTCTTAGCTGAAC 1260 	
Qy 1261 GJ 	GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGACAAAACTAGAGACTCAAAG 1320 	
Qy 1321 AC       Db 1321 AC	AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGTTGAACCTAAACATAGAAT 1380 	

```
ö
                                                                                                                                                                PAT 16-MAY-2001
                         1381 TGCCTGACGAACTCCTTGATTTTAGCCTTCTCTCTTTCCTTCAAAAAAGATTTCCCCA 1440
1381 TGCCTGACGAACTCCTTGATTTTAGCCTTCTCTTTCATTTCCTCAAAAAAGATTTCCCCA 1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGGCAGGACCACCTTG 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61 ACTAAAGTTCTGAAAGACCTGTTGCTTTTCACCAGGAAGTTTTACTGGGCATCTCCTGAG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121 CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCCAAAAG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACTAAAGTICIGAAAGACCIGIIGCIITTICACCAGGAAGIITITACIGGGCATCICCIGAG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAAATCACAACCACAGCAAGGAGTCCCACACCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GIGIGGAGCCCCGAACTCCAIGGGTTTCCAGTAGAATTTCAAGCCAGAIGTGCCTGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGGCAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCGTTGCTGCGTTTT
                                                                                                                                                                                                                                                                                                                                                        1 (bases 1 to 1440).
Thomas, W. J., Drayna, D.T., Feder, J.N., Gnirke, A., Ruddy, D., Tsuchihashi, Z. and Wolff, R.K.
Hereditary hemochromatosis gene products
Patent: US 6140305-A 10 31-0CT-2000;
Local Local Local Local Library Library Local Library Local Library Local Library Local Library Local Library Local Library Librar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TIGAAGCTITIGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATGATGAGGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 1440;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               99.9%; Score 1438.4;
99.9%; Pred. No. 0;
iive 0; Mismatches
                                                                                                                                                    1440 bp
Sequence 10 from patent US 6140305.
AR117794.1 GI:14098700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="unknown"
355 c 406 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity 99.9
Matches 1439; Conservative
                                                                                                                                                                                                                                                                                                                                      Unclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  348 a
                                                                                                                                                                                                                                                                                    Unknown
                                                                                                                                                                                                                                                                                                             Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                    DEFINITION
ACCESSION
VERSION
                                                                                                                                                                                                                                                                                      SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  541
                                                                                                                                                                                                                                                                                                                                                          REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         361
                                                                                                                   RESULT
AR117794
                                                                                                                                                                                                                                                                  KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORIGIN
  ŏ
                                             q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ōλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QΩ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
```

6 8

ö

BASE COUNT 347 a 354 c 408 ORIGIN	Query Match 99.9%; Sco Best Local Similarity 99.9%; Pre Matches 1439; Conservative 0;	Qy 1 GGGGACACTGGATCACCTAGTGTTTCA	Db 1 GGGGACACTGGATCACCTAGTGTTTCA Qy 61 ACTAAAGTTCTGAAAGACCTGTTGCTT	61	UY 121 CCTAGGCAATAGCTGTAGGGTGACTTC	Qy 181 AAGCGGAGATTTAACGGGGACGTGCGG	Db 181 AAGCGGAGATTTAACGGGGACGTGCGG Qy 241 CGGCGCTTCTCCTCCTGATGCTTTTGC	Db 241 CGGCGCTTCTCCTCTGATGCTTTTGC. Ov 301 CACACTCTCCCCCTGATGCTTTTGG.		Qy 361 TIGAAGCITTGGGCTACGTGGAIGACC	Db 361 TTGAAGCTTTGGGCTACGTGGATGACC Qy 421 GTGTGGAGCCCCGAACTCCATGGGTTT		, 4	Qy 541 AAAATCACAACCACAGCAAGGAGTCCC 	601	601	OY 661 AATTCTGCCCTGACACTGGATTGGA	QY 721 TGGAGTGGGAAAGGCACAAGATTCGGG 	Qy 781 GCCCTGCACAGCTGCAGCAGTTGCTGGA	Db 781 GCCTGCACAGCTGCAGCAGTTGCTGG	Oy 841 CTCCTTTGGTGAAGGTGACACATCATGT 	901	Db 901 CCTTGAACTACTACCCCCAGAACATCAC	Qy 961 ATGCCAAGGAGTTCGAACCTAAAGACG1
Db 601 AAGAAGACAGTACCGAGGGTACTGGAAGTACGGGTATGATGGGGCAGGACCACTTG 660  Oy 661 AATTCTGCCCTGACACACTGGATTGGAGAGCAGAAGCCAGGGCCTGGCCCACGAAGC 720	Db 661 AATTCTGCCCTGACACTGGATTGGACAGCAGCAGCCCAGGCCCTGGCCCAGC 720  Qy 721 TGGAGTGGGAAAGGCACAAGATTCGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGGACT 780	Db 721 TGGAGTGGGAAAGGCACAAGATTCGGCCCAGGCAGAACAGGCCTACCTGGAGGGACT 780	OY 781 GCCCTGCACACACAGCTGCTGGAGCTGGGGGAGAGGTGTTTTGCACCAACAGCG 840	OY 841 CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGGG 900	901 CCTTGAACTACTCCCCGGAACATCACATGAAGTGCTGAAGGATAAGCGATGG	901 CCTTGAACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG 9	Qy     961 ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT 1020       IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Qy       1021       GGATAACCTTGGCTGTACCCCTGGGGAAGAGCAGATATACGTACCAGGTGGACACC       1080         Db       1021       GGATAACCTTGGCTGTACCCCTGGGGAAGAGCAGAATATACGTACCAGGTGGAGCACC       1080	114	1081	Oy 1141 TIGGAGTCATCAGTGGAATIGCTGTTTTTGTCGTCATCTTGTTCGTTGGGAATTTGTTCA 1200	Qy         1201 TAATATTAAGGAAGGGGGGGTCAAGAGGAGCCATGGGGACCTACGTCTAGCTGAAC 1260           IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	1261 GTGAGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG 13	Db 1261 GTGAGTGACACGCCTGCAGACTCACTGTGGGAAGGAGAAAACTAGAGACTCAAAG 1320 Qy 1321 AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAACATAGAAAT 1380		OY 1381 TGCCTGACGAACTCCTTGATTTTAGCCTTCTTCTCTCTAAAAAGATTTCCCCA 1440	GCCTGACGAACTC	AR117795 LOCUS AR117795 LOCUS AR117795 1440 bp DAP linear PAT 16-MAY-2001 ACFRSTON AB17705		S	Unclassified. REFERENCE 1 (bases 1 to 1440) AUTHORS Thomas, W.J., Drayna, D.T., Feder, J.N., Gnirke, A., Ruddy, D.,	Tsuchihashi, Z. and Wolff, R.K. Hereditary hemochromatosis gene products	JOURNAL FATERIT: US 5140305-A 11 31-2071-2000; FEATURES Location/Qualifiers Source 1 1440	/organism="unknown"

```
961 AIGCCAAGGAGTICGAACCTAAAGACGTATIGCCCAAIGGGGAIGGGACCTACCAGGGCT 1020
                                                                                                                   CTGGAGCCATCCCGGTTCCCCGCCCCCAAAG 180
                                                                                                                                                            240
                                                                                                                                                                             240
                                                                              TITCACCAGGAAGITITACTGGGCATCTCCTGAG 120
                                                                                               120
                                                                                                                                                                                                 300
                                                                                                                                                                                                                     300
                                                                                                                                                                                                                                         360
                                                                                                                                                                                                                                                           360
                                                                                                                                                                                                                                                                                                  420
                                                                                                                                                                                                                                                                                                                      480
                                                                                                                                                                                                                                                                                                                                         480
                                                                                                                                                                                                                                                                                                                                                           540
                                                                                                                                                                                                                                                                                                                                                                      600
                                                                                                                                                                                                                                                                                                                                                                                                                     900
                                                                                                                                                                                                                                                                                                                                                                                                                                                           99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCAGGCAGAACAGGGCCTACCTGGAGAGGGACT 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             960
                                                                                                                                                                                                                                                                              CAGCTGTTCGTGTTCTATGATGAGAGTCGCC 420
                                                                                                                                                                                                                                                                                                                                                                                                                                        TGGAAGTACGGGTATGATGGCCAGGACCACCTTG 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGC 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  720
                    Gaps
                                      9
                                                          9
                                                  ACAAGCAGGTACCTTCTGCTGTAGGAGAGAGA
                                                                                                                                                                                                           GGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                                                     TCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                            CACACCCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAGACCGCGGTCCTGCAGGGGCGCTTGCTGCGTT
                                                                                                                                                                                                                                                    GGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                         CACACCCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GAGCTGGGGAGAGGTGTTTGGACCAACAAGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCAGAGCTGGGGAAATGGGCCCGCGAGCCAGGC
                                                                                                                                                                                                                                                                                                                                                           CACATGITCACIGITGACITCIGGACIATIAIGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SAGCTGGGGAGAGGTGTTTTGGACCAACAAGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG
Length 1440;
                    ô
                   Indels
 ;
9
                   1;
 DB
core 1438.4;
red. No. 0;
Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Op
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ŏ
```

11:20:16

13

Jun

Wed

```
781
                                                                                                                                                                                                                                                                                                                                                                                                                1021
                                                                                                                                                                                                                                                                                                                                                                                                                                              1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                             1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1201
                                                           301
                                                                           361
                                                                                                                      421
                                                                                                                                                  481
                                                                                                                                                                 541
                                                                                                                                                                                 541
                                                                                                                                                                                               601
                                                                                                                                                                                                                             661
                                                                                                                                                                                                                                                                         721
                                                                                                                                                                                                                                                                                                                      841
                                                                                                                                                                                                                                                                                                                                    841
                                                                                                                                                                                                                                                                                                                                                   901
                                                                                                                                                                                                                                                                                                                                                                   901
                                                                                                                                                                                                                                                                                                                                                                                   961
                                                                                                                                                                                                                                                                                                                                                                                                 961
                                                                                                                                                                                                                                                                                                                                                                                                                               1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1261
 181
                                             301
                                                                                                        421
                                                                                                                                                                                                              601
                                                                                                                                                                                                                                            661
                                                                                                                                                                                                                                                           721
                                                                                                                                                                                                                                                                                        781
               241
                                                                                                                                     481
                          a
                                                         qq
                                                                          Qγ
                                                                                      Db
                                                                                                     δ
                                                                                                                    g
                                                                                                                                    à
                                                                                                                                                q
                                                                                                                                                                 δ
                                                                                                                                                                              ద
                                                                                                                                                                                              Qγ
                                                                                                                                                                                                             qq
                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                         Pb
                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                    Db
                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                    οy
                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                              qq
                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qγ
g
               Qγ
                                           Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                       ó
                                                                                                                                                                                                                                                            08-AUG-2001
                                                                                                                                                                         1380
                       1080
                                     1080
                                                   1140
                                                                   1140
                                                                               1260
                                                                                                                      GTGAGTGACACCCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG 1320
                                                                                                                                                          1320
                                                                                                                                                                                        1380
                                                                                                                                                                                                                     1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACTAAAGTTCTGAAAGACCTGTTGCTTTTCACCAGGAAGTTTTACTGGGCATCTCCTGAG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         240
                                                                                                                                                                                                                                                                                                                                           absence of a hereditary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACTAAAGTTCTGAAAGACCTGTTGCTTTTCACCAGGAAGTTTTACTGGGCATCTCCTGAG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCCAAAAG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                      09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9
                                                                                                                                                                         AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAAACATAGAAAT
                                                                                                                                                                                                     CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA
GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG
                                                                                                                                                                                TAATATTAAGGAAGGCAGGGTTCAAGAGGAGCCATGGGGGCACTACGTCTTAGCTGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAGCGGAGATTTAACGGGGACGTGCGGCCAGACTGGGGAAATGGGCCCGCGAGCCAGGC
                       GGATAAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTACCAGGTGGAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 (bases 1 to 1440)
Thomas,W.J., Drayna,D.T., Feder,J.N., Gnirke,A., Ruddy,D.
Tsuchihashi,Z. and Wolff,R.K.
Method for determining the presence or absence of a hered
hemochromatcsis gene mutation
Patent: US 6228594-A 10 08-MAY-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                       Length 1440;
                                                                                                                                                                                                                                                            PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                       ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                            linear
                                                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                                                      1;
                                                                                                                                                                                                                                                                                                                                                                                                                        DB
                                                                                                                                                                                                                                                            DNA
                                                                                                                                                                                                                                                                                                                                                                                          u
                                                                                                                                                                                                                                                                                                                                                                                                                       Score 1438.4;
Pred. No. 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Mismatches
                                                                                                                                                                                                                                                           1440 bp
US 6228594
                                                                                                                                                                                                                                                                                                                                                                                          331
                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
1. .1440
                                                                                                                                                                                                                                                                                                                                                                                 /organism="unknown"
355 c 406 g
                                                                                                                                                                                                                                                          AR149464
Sequence 10 from patent
AR149464
AR149464.1 GI:15114055
                                                                                                                                                                                                                                                                                                                                                                                                                       99.98;
99.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                       Unknown.
Unclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                         ์เซ
                                                                                                                                                                                                                                                                                                                                                                                         348
                                                                                                                                                                                                                                                                                                Unknown.
                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Simi
Matches 1439;
                                                                                                                                                                                                                                           RESULT 5
AR149464
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                         ACCESSION
VERSION
                      1021
                                    1021
                                                   1081
                                                                  1081
                                                                                 1141
                                                                                               1141
                                                                                                              1201
                                                                                                                             1201
                                                                                                                                           1261
                                                                                                                                                          1261
                                                                                                                                                                         1321
                                                                                                                                                                                      1321
                                                                                                                                                                                                      1381
                                                                                                                                                                                                                     1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181
       961
                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                       KEYWORDS
                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                         Q
                                                                                                                                                      g
                                                                                                                                                                                     Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Óλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             q
                                   g
                                                               g
                                                                                          q
                                                                                                              οy
                                                                                                                                      δ
                                                                                                                                                                         à
                                                                                                                                                                                                     οχ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ÓΥ
       셤
                     οy
                                               οy
                                                                               οy
```

```
1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   960
                                                                                 360
                                                                                                            360
                                                                                                                                        420
                                                                                                                                                                                              480
                                                                                                                                                                                                                       480
                                                                                                                                                                                                                                                     540
                                                                                                                                                                                                                                                                               540
                                                                                                                                                                                                                                                                                                          009
                                                                                                                                                                                                                                                                                                                                     009
                                                                                                                                                                                                                                                                                                                                                                   99
                                                                                                                                                                                                                                                                                                                                                                                             099
                                                                                                                                                                                                                                                                                                                                                                                                                         720
                                                                                                                                                                                                                                                                                                                                                                                                                                                    720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           780
                          300
                                                     300
                                                                                                                                                                 420
                                                                                                                                                                                                                                                                   CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCTTGAACTACCCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGGCTGCAGC
                                                                                                                                                                                                                                                                                                                                                                   AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGGCAGGACCACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                           AATTCTGCCCTGACACACTGGATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGCAAAAAGGGCCTACCTGGAGAGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTACCAGGTGGAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TIGGAGICATCAGIGGAATIGCIGITITIGICGICAICTIGITCATIGGAATITIGITCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TAATATTAAGGAAGAGGCAGGGTTCAAGAGAGGCCATGGGGCACTACGTCTTAGCTGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG
CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCGGTT
                                                                                   CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                        TIGAAGCTITGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATGAGAGTCGCC
                                                                                                                                                                                                                           GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC
                                                                                                                                                                                                                                                      TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCCTGCACAGCTGCAGCTGCTGGAGCTGGGGAGAGGTGTTTTGGACCAACAAGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
```

900

099

999 720 720 780 780 840

900 900 096 960

840

```
PAT 16-MAY-2001
                                                                                                                                                                                                                                                                                                                                                                     AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGTGGGCAGGACCATTG
                                                                                  TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGACAGGGGCCTACCTGGAGAGGGACT
                                                                                                                       GCCCTGCACAGCTGCAGTTGCTGGAGCTGGGGAGGTGTTTTGGACCAACAAGTGC
                                                                                                                                                          CCTTGAACTACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG
                                                                                                                                                                                                                                         CCTTGAACTACTCCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG
                                                                                                                                                                                                                                                            ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGGACCTACCAGGGCT
                                                                                                                                                                                                                                                                     GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTACCAGGTGGAGCACC
                                                                                                                                                                                                                                                                                                          AAAATCACAACCACAGGAAGGAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                        AATTCTGCCCTGACACACTGGATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGC
                                                                                                                                                                                                                                                                                                                                                                                                          TAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGGCACTACGTCTTAGCTGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                              GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGAAAAACTAGAGACTCAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGTTGAACCTAAACATAGAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 (bases 1 to 1440)
Thomas,W.J., Drayna,D.T., Feder,J.N., Gnirke,A., Ruddy,D.,
                                                                                                                                                                                                                                linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1440 bp
patent US 6140305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AR117793
Sequence 9 from patent U
AR117793
AR117793.1 GI:14098699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Unknown.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                        1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1321
                                                                                                                                                                                                     841
                                                                                                                                                                                                                                                            961
                                                                                                                                                                                                                                                                             961
                                                                                                                                                                                                                                                                                                1021
                                                                                                                                                                                                                                                                                                                 1021
                                                                                                                                                                                                                                                                                                                                                                      1141
                                                                                                                                                                                                                                                                                                                                                                                                          1201
                                                                                                                                                                                                                                                                                                                                                                                                                            1201
                                                                                                                                                                                                                                                                                                                                                                                                                                             1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                               1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1381
                                   601
                                                     601
                                                                       199
                                                                                          199
                                                                                                            721
                                                                                                                              721
                                                                                                                                               781
                                                                                                                                                                 781
                                                                                                                                                                                     841
                                                                                                                                                                                                                        901
                                                                                                                                                                                                                                         901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
AR117793
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
            g
                                                     원
                                                                                        g
                                                                                                                             qq
                                                                                                                                                                q
                                                                                                                                                                                                   g
                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                           QQ
                                  οy
                                                                      δ
                                                                                                           ŏ
                                                                                                                                              δ
                                                                                                                                                                                    δy
                                                                                                                                                                                                                       ολ
                                                                                                                                                                                                                                                           δy
                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                               Dp
                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δý
                                                                                                                                                                                                                                                                                                                           ó
                                                                                                            08-AUG-2001
                                           1440
                                                                                                                                                                                                                                                                                                                                                                                                                  180
                                                                                                                                                                                                                                                                                                                                                                                                                                                      240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   360
                                                                                                                                                                                                              absence of a hereditary
                                                                                                                                                                                                                                                                                                                                                                              ACTAMAGITCIGAAAGACCIGITGCTTTTCACCAGGAAGITTTACTGGGCATCTCCTGAG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATGATGAGGTCGCC 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        480
                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                         9
    AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                               181 AAGCGGAGATTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGGCCAGGC
                                                                                                                                                                                Thomas,W.J., Drayna,D.T., Feder,J.N., Gnirke,A., Ruddy,D., Thomas,W.J., Drayna,D.T., Feder,J.N., Gnirke,A., Ruddy,D., Tsuchihashi,Z. and Wolff,R.K.
Method for determining the presence or absence of a herediihemcchromatcsis gene mutation
Patent: US 6228594-A 11 08-MAY-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .;
0
                                                                                                            PAT
                                                                                                                                                                                                                                                                                                        Length 1440;
                                                                                                           linear
                                                                                                                                                                                                                                                                                                                         1; Indels
                                                                                                                                                                                                                                                                                                        . 6
                                                                                                                                                                                                                                                                                                        DB
                                                                                                                                                                                                                                                                                                      Score 1438.4;
Pred. No. 0;
0; Mismatches
                                                                                                         AR149465 1440 bp 1
Sequence 11 from patent US 6228594.
AR149465
                                                                                                                                                                                                                                                                   331
                                                                                                                                                                                                                                       Location/Qualifiers
1. .1440
                                                                                                                                                                                                                                                       /organism="unknown"
354 c 408 g
                                                                                                                                    AR149465.1 GI:15114056
                                                                                                                                                                                                                                                                                                      99.98;
                                                                                                                                                                                                                                                                                                     Query Match 99.9
Best Local Similarity 99.9
Matches 1439; Conservative
                                                                                                                                                                         Unclassified
                                                                                                                                                                                                                                                                    ๙
                                                                                                                                                       Unknown
                                                                                                                                                                                                                                                                   347
                                                                                                                                                                 Unknown
                                                                                       RESULT 6
AR149465
LOCUS
DEFINITION
                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                 BASE COUNT
ORIGIN
                                                                                                                                                                ORGANISM
                                                                                                                           ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          481
                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                              JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         481
                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                            TITLE
                      Q
                                                          원
     ò
                                          ò
                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
```

1140

1020 1020 1080 1080 1320

1320

```
AR149463
                                                                                                                                                                                                                                                                                                                                                                   Unknown
                                                                                                                                                                                                                                                                                                                                                                            Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Sin
Matches 1438;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                            Ф
                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                     1141
                                                                                                                                                                                                    1261
                                                                                                                                                                                                                   1261
                                                                                                                                                                                                                                    1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                    1201
                                                                                                                                                                                                                                                                                    1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61
                                      961
                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                            RESULT
AR149463
                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                   VERSION
                                                                                                                                                                                                                                                                                                                           LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                    δλ
                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŏ
                                                                                                                    g
                                                                                                                                                  g
                                                                                                                                                                    Ω
                                                                                                                                                                                   q
                                                                                                                                                                                                    ò
                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                    οy
                                                                                                                                                                                                                                                    g
                    q
                                       δy
                                                    g
                                                                      δ
                                                                                     g
                                                                                                   ò
                                                                                                                                    Qγ
                                                                                             ö
                                                                                                                                                                                                                                                                                                                                            480
                                                                                                                                                                                                                                                                                                                                                                                           540
                                                                                                                                                                                                                                                                                                                                                                                                            900
                                                                                                                                                                                                                                                                                                                                                                                                                                           099
                                                                                                                                                                                                                                                                                                                                                                                                                                                            9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           900
                                                                                                                                                                                                                                                                                                                                                            480
                                                                                                                                                                                                                                                                                                                                                                                                                           9
                                                                                                                                            121 CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCCCAAAA 180
                                                                                                                                                                                                                                             300
                                                                                                                                                                                                                                                            300
                                                                                                                                                                                                                                                                            360
                                                                                                                                                                                                                                                                                            360
                                                                                                                                                                                                                                                                                                            420
                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                              9
                                                                                                                            9
                                                                                                                                                                                                                                                                                                                                                                           AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGGCCAGGACCACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGCCAGAACAGGGCCTACCTGGAGAGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
                                                                                                                      GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC
                                                                                                                                                                                                                                                                                                                                                            GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                             AAAATCACAACCACAGCAAGGAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AATTCTGCCCTGACACACTGGATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCCTGCACAGCTGCAGCTTGCTGGAGCTGGGGGAGGTGTTTTGGACCAACAAGTGC
                                                                                                              CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCCAAAAG
                                                                                                                                                                                                            AAGCGGAGATTTAACGGGGACGTGCGGCCAGACCTGGGGAAATGGGCCCCGCGAGCCAGGC
                                                                                                                                                                                                                                             CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCCGCTTGCTGCGTT
                                                                                                                                                                                                                                                                             CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                                            TTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATGATGAGTCGCC
                                                                              Length 1440;
                                                                                             ;
0
                                                                                             Indels
                                                                               ;
9
                                                                                             5
       Hereditary hemochromatosis gene products
Patent: US 6140305-A 9 31-0CT-2000;
Location/Qualifiers
1. .1440
                                                                               DB
                                                                             Score 1436.8;
Pred. No. 0;
0; Mismatches
                                              ų
                                              331
rsuchihashi, Z. and Wolff, R.K.
                                     /organism="unknown"
355 c 407 g
                                                                              99.88;
                                                                              Query Match
Best Local Similarity 99.9
Matches 1438; Conservative
                                                Ø
                                              347
                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            721
                                               BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           841
                                                                                                                                                                                                                                                                                                                                                                                                             541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            199
                                                                                                              Н
                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                             241
                                                                                                                                                                                                                                                             241
                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                            361
                                                                                                                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                                                                                                            421
                                                                                                                                                                                                                                                                                                                                                                                                                                            601
                                                                                                                                              61
                                                                                                                                                             61
                                                                                                                                                                             121
                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                            361
                TOURNAL
                       FEATURES
                                                       ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          q
                                                                                                                                                                                                                                                                                           qq
                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                            δy
                                                                                                                                                                                                                                                                                                                                                                                                                          qq
                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ω
                                                                                                               á
                                                                                                                             g
                                                                                                                                             ö
                                                                                                                                                            q
                                                                                                                                                                             δ
                                                                                                                                                                                            qq
                                                                                                                                                                                                            QΥ
                                                                                                                                                                                                                          QQ
                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                            δý
                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                            Qγ
                                                                                                                                                                                                                                                                                                                                                                            ò
```

```
08-AUG-2001
                                                                                                       1080
                                                                                                                                1080
                                                                                                                                                                                                                                        1200
                                                                                                                                                                                                                                                                  1260
                                                                                                                                                                                                                                                                                             1260
                                                                                                                                                                                                                                                                                                                     1320
                                                                                                                                                                                                                                                                                                                                               1320
                                                                                                                                                                                                                                                                                                                                                                          1380
                                                                            1020
                                                                                                                                                                                                               1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  or absence of a hereditary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ġ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1201 TAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGCACTAGGTCTTAGCTGAAC
                                                                                                                                                                                                                                                                                                                       GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG
                                                                                                                                                                                                                                                                                                                                       1381 IGCCIGACGAACTCCTIGATTTTAGCCTTCTCTGTTCATTTCCTCAAAAAGATTTCCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                             1021 GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTGCCAGGTGGAGCCC
                                                                                                                                                                                                                                                                    TAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGCACTACGTCTTAGCTGAAC
                                                                                                                                                                                                                                                                                                                                                                           AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAACATAGAAAT
                                                     ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT
                                                                   1021 GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTACCAGGTGGAGCACC
                                                                                                                                                                                                               TTGGAGTCATCAGTGGAATTGCTGTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gnirke, A., Ruddy, D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 1440;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Feder, J.N.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            99.8%; Score 1436.8; 99.9%; Pred. No. 0; ive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Method for determining the presence
hemochromatosis gene mutation
Patent: US 6228594-A 9 08-MAY-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           440 bp
6228594.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 (bases 1 to 1440)
Thomas, W.J., Drayna, D.T., Fed
Tsuchihashi, Z. and Wolff, R.K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
1. .1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="unknown"
355 c 407 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 9 from patent US
ARI49463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AR149463.1 GI:15114054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Unclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ø
```

	HSUG0319 Homo sapiens haemcU60319.1 GI:1469' human. Homo sapiens Bukaryota; Metazoz Mammalla; Butheria 1 (bases 1 to 27' Feder,J.N., Gnirk Hinfon I. M., Tonanish	Lee, V.K., Loeb, D.J. Mintler, G.A., Moe. Quintana, L., Strat Drayna, D.T., Ricci A novel MHC class Cl	Lee,V.K., Loeb,D.F. Mintier,G.A., Moel Quintana, L., Stran Drayna,D.T., Risch Direct Submission Submitted (10-JUN- Menlo Park, CA 94( Action, 1. 2727 / Action/ / Ab_xreff / Ab_xreff / Ab_xreff / Ab_xreff	/map="6p2 12727 /gene="HE /note="HE /gene="HE /gene="HI /codon_st /protein /db_xref= /translat	WTIMENINH RAWPTKLEW SVTTLRCRA EQRYTCQVE SRGAMGHYV 702 a 606 o
Db 1201 201 201 201 201 201 201 201 201 20	RESULT 9 HSG60319 LOCUS DEFINITION ACCESION VERSION VERSION VERYWORDS SOURCE ORGANISM REFERENCE AUTHORS	TITLE JOURNAL MEDLINE REFERENCE AUTHORS	TITLE JOURNAL FEATURES SOUFCE	gene	BASE COUNT
121 CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCGGTTTCCCGGCCCCCCAAAAG	11   11   11   11   11   11   11   1	QY   GO1 AAGAAGACAACAGTACCGGAGGCTACTGGAAGTACGGGTATGATGGCCAGGACCACCTTG   60   11111111111111111111111111111111	Qy         781 GCCTGCACAGCTGCAGATTGCTGGAGGAGGAGGTGTTTTGGACCAACAAGTGC 840           Db         781 GCCTGCACAGCTGCAGCAGTTGCTGGAGGTGTTTTTTTTT	QY         961 ATGCCAAGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT 1020           Db         111111111111111111111111111111111111	OY 1141 TTGGAGTCATCAGTGGAATTGCTGTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCA 1200

```
heria; Primates; Craniata; Vertebrata; Euteleostomi;
heria; Primates; Catarrhini; Hominidae; Homo.
10 2727)
inirke, A., Thomas, W., Tsuchihashi, Z., Ruddy, D. A.,
primishian, F., Domingo, R., Ellis, M.C., Fullan, A.,
Jones, N. L., Krimmel, B. E., Kronmal, G. S., Lauer, P.,
bb, D. B., Mapa, F., McClelland, E., Meyer, N. C.,
Moeller, N., Moore, T., Morkang, E., Prass, C. E.,
Stranes, S. M., Schatzman, R. C., Brunke, K. J.,
Risch, N. J., Bacon, B. R. and Wolff, R. K.
Risch, N. J., Bacon, B. R. and Wolff, R. K.
Liske gene is mutated in patients with
lemochromatosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ation-"MGPRARPALLLLMLLQTAVLQGRLLRSHSLHYLFWGASEQDLGL
YVDDQLFVEYDHSERNEFRFPWGSRSTSGQWMLQLSGSIKGDHWETVDF
NHSKESHTLQVILGCEMQEDNSTESYWKYSYDGODLLEFCPDTLDNARAEF
EWERHKIRARQNRAYLERDCPAQLQQLLELGRGVLDQOVPPLVKYTHHVTS
KALNAYPQNYTWKMLKDKQPMDAREFEPKROYLPNGDGTYQGWITLAVPPGE
VEHPGLDQPLIVIWEPSFSGTLVIGVISGIAVFVVILFIGILFILBRRQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2727 bp mRNA linear PRI 29-OCT-1997 emochromatosis protein (HLA-H) mRNA, complete cds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            nirke,A., Thomas,W., Tsuchihashi,Z., Ruddy,D.A.,
mirkhan,F., Domingo,R., Bliss,M.C., Fullan,A.,
Jones,N.L., Kimmel,B.E., Kronmal,G.S., Lauer,P.,
b,D.B., Mapa,F., McClelland,E., Meyer,N.C.,
Moeller,N., Moore,T., Morkang,E., Prass,C.E.,
Stranes,S.M., Schatzman,R.C., Brunke,K.J.,
Risch,N.J., Bacon,B.R. and Wolff,R.K.
GCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG 1320
                                                                                                                                                                                CTCTTCATGTTTCAGGAGAGAGTTGAACCTAAACATAGAAAT 1380
                                                                                                                                                                                                           N-1996) Mercator Genetics, 4040 Campbell Ave.,
4025, USA
n/Qualifiers
                                                                                                     L="haemochromatosis protein"
1_id="AAC51823.1"
f="GI:1469790"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ism="Homo sapiens"
ef="taxon:9606"
osome="6"
6p21.3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HLA-H"
start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HLA-H"
HFE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6846
```

σ

g

q ò 요

õ

g

οy

g

οy

g δy Db QΥ g ò g οy g δy q Qγ g οy

δý

```
RESULT 10
HSA249335
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
                                             1021
                                                                    1081
                                                                                                                  1141
                                                                                                                                                               1201
                                                                                                                                                                                     1201
                                                                                                                                                                                                            1261
                                                                                                                                                                                                                                  1261
                                                                                                                                                                                                                                                           1321
                                                                                                                                                                                                                                                                                                        1381
                                                                                                                                                                                                                                                                                                                               1381
 961
                        1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                    VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
                                           q
                                                                                         g
                                                                                                                  δ
                                                                                                                                       QQ
                                                                                                                                                               δ
                                                                                                                                                                                     qq
                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                 qq
                                                                                                                                                                                                                                                           δy
                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                               В
g
                     QY
                                                                   δ
                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT 1020
                                                                                                                                                                                                                                                                                                                                                                420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               960
                                                                                                                                                                          180
                                                                                                                                                                                     121 CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCCCAAAAG 180
                                                                                                                                                                                                                         240
                                                                                                                                                                                                                                              240
                                                                                                                                                                                                                                                                      300
                                                                                                                                                                                                                                                                                             300
                                                                                                                                                                                                                                                                                                                                                                             GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC 480
                                                                                                                                                                                                                                                                                                                                                                                                                                    480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              009
                                                                                                                            ACTAAAGTTCTGAAAGACCTGTTGCTTTTCACCAGGAAGTTTTACTGGGCATCTCCTGAG 120
                                                                                                                                        CACACTCTGCGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT 360
                                                         Gaps
                                                                               CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCCGCCCCCCAAAAG
                                                                                                                                                                                                                         AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGGAAATGGGCCCGCGCAGCCAGGC
                                                                                                                                                                                                                                     241 GGGGGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCTGTT
                                                                                                                                                                                                                                                                                                                                 AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGGCAGGACCACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  721 TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          841 CICCITIGGIGAAGGIGACACAICAIGIGACCICITCAGIGACCACICIACGGIGICGGG
                                                                                                                                                                                                                                                                                                                                                                 TTGAAGCTTTGGGCTACGTGGATGATCAGCTGTTCGTGTTCTATGATGATGAGAGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                   421 GIGIGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        541 AAAATCACAACCACAGCAAGGAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AATTCTGCCCTGACACACTGGATTGGAGAGCAGAACCCCAGGGCCTGGCCCACCAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCCTGCACACCACCAGCTGCTGGAGCTGGGGGAGGTGTTTTGGACCAACAAGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTCCTTTGGTGAAGGTGACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCTTGAACTACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 2727;
                                                         ;
                                                         2; Indels
                                  6
                                  DB
                                Score 1436.8;
Pred. No. 0;
0; Mismatches
                                  99.8%;
                                             Best_Local Similarity 99.9
Matches 1438; Conservative
                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       961
                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        901
                                                                                                                            61
                                                                                                                                                                          121
                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                              421
                                                                                                                                                                                                                                                                                                                                                                                                                                                          481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              781
ORIGIN
```

g

ò qq Qy g Qγ g

ŏ

```
/product="hemochromatosis protein"
/protein_id="cAc67192.1"
/db_xref="G1:15485419"
/taxslation="MGPRARPALLLLMLLQTAVLQGRLLPLGYVDDQLFVFYDHESRR
/translation="MGPRARPALLLLMLLQTAVLQGRLLPLGYVDDQLFVFYDHESRR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     form with deletion of first 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRI 04-SEP-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               / Lucator
/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi; Mammalia; Eutheria, Primates, Catarrhini, Hominidae, Homo. 1 (bases 1 to 1280)
Oliva, R. and Sanchez, M. Identification of different alternative splicing forms of the HFE
                                                                                                                                                                          1080
                                                                                                                                                                                                                                                                  1140
                                                                                                                                                                                                                                                                                                                                                                                                                                            1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGCACTACGTCTTAGCTGAAC 1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGCCTGACGAACTCCTTGATTTTAGCCTTCTCTGTTCATTTCCTCAAAAAGATTTCCCCA 1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene) splice
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TAATATTAAGGAAGAAGCAGGGTTCAAGAGGAGCCATGGGGCCACTACGTCTTAGCTGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAAACATAGAAAT
ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT
                                                                                            GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTACCAGGTGGAGCACC
                                                                                                                                     CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                            TIGGAGICATCAGIGGAATIGCIGITITITIGICGICATCTIGITCATIGGAAITITIGICA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTGAGTGACACCCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HFE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens mRNA for hemochromatosis protein (HFE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AJ249335
AJ249335.1 GI:15485418
alternative splicing; hemochromatosis protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="HFE"
/function="iron metabolism"
/note="alternative splicing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ďq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /evidence=experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /map="6p22"
/cell_line="HepG2"
161. .1138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Unpublished
2 (bases 1 to 1280)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="HFE"
161. .1138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        pb of exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   variant 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HSA249335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
```

```
VEPRTPWVSSRISSOWMLQLSQSLKGWDHMFTVDFWTIMENHNHSKESHTLQVILGCE
MODBNSTEGYWKYGYDGQDHLEFCPDTLDWRAAEPRAMPTKLEWERHKIRARONRAYL
ENDCPAQLQQLLELGRGVLDQQVPPLVKYTHHVSSVTTLRCRALNYPQNITMKWLK
DKQPMDAKEFEPRVDLANGGYPTLLAYPGGEDGRYTQCYGHPGLDQPLIVIWEP
SPSGTLVIGVISGIAVFVVILFIGILFILLRKRQGSRGAMGHYVLARERE"
                                                                                                                       1;
                                                                                                                                                                                               241
                                                                                                                                                                                                                                                     180
                                                                                                                                                                                                                                                                                              236
                                                                                                                                                                                                                                                                                                                                        236
                                                                                                                                            121
                                                                                                                                                                                                                                                                         301
                                                                                                                                                                                                                                                                                                                  361
                                                                                                                                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                                                                                                                                  291
                                                                                                                                                                                                                                                                                                                                                                                                                  541
                                                                                                                                                                                                                                                                                                                                                                                                                                                            601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 901
                                                                                                                                                                                    122 CTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCCCAAAGA 181
                                                                                                                                                                                                                                                                                                                                                                                                       TGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGCT 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGCGCAGGACCACCTTGA 661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                9
                                                                                                                                         62 CTAAAGITCTGAAAGACCTGTTGCTTTTCACCAGGAAGTTTTACTGGGCATCTCCTGAGC
                                                                                                                                                    182 AGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCCAGGCC
                                                                                                                                                                                                                                                                       242 GGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCGTTC
                                                                                                                                                                                                                                           181 GGGGTTCTCCCCCCGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCT---
                                                                                                                                                                                                                                                                                                                 ACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGTT
                                                                                                                                                                                                                                                                                                                                                           TGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATGAGAGTCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                GAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAATCACAACCACAGCAAGGAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGAGTGGGAAAGGCACAAGATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGAGTGGGAAAGGCACAAGATTCGGGCCAGACAGGGCCTACCTGGAGAGAGGGACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCCTGCACAGCTGCAGCTGCTGGAGCTGGGGAGAGGTGTTTTGGACCAACAAGTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTTGAACTACCCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGGA
                                                                                                                       :69
                                                                                                 Length 1280;
                                                                                                                       Indels
                                                                                                 .,
                                                                                                                      5,
                                                                                                 DB
                                                     284 t
                                                                                                Score 1197.8;
Pred. No. 0;
                                                                                                                      0; Mismatches
                                                     371 g
                                                                                                83.2%;
94.7%;
                                                     314 c
                                                                                                                      Conservative
                                                                                                          Local Similarity
                                                      311
                                                                                                                      Matches 1278;
                                                                                                 Match
                                                     BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                      237
                                                                                                                                                                                                                                                                                                                                                                                                      422
                                                                                                                                                                                                                                                                                                                302
                                                                                                                                                                                                                                                                                                                                                           362
                                                                                                                                                                                                                                                                                                                                                                                 237
                                                                                                                                                                                                                                                                                                                                                                                                                           292
                                                                                                                                                                                                                                                                                                                                                                                                                                               482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     782
                                                                                                 Query
                                                                                                                                                               a
                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                          à
                                                                                                                                                                                    ò
                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                          ç
                                                                                                                                                                                                                                                                                                                                                                                                     οy
                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
```

```
/codon_start=1
/product="hemochromatosis termination variant terE6"
/protein_id="AAG29572.1"
/db_xref="GI:11094315"
/translation="MORRARRALLLMLQTAVLOGRLLRSHSLHYLFWGASEQDLGLSLFEALGYVDDQLFVFYDHESRRVEPRTPWVSSRISSQWMLQLSQSLKGWDHMFTVDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1200 bp mRNA linear PRI 07-MAY-2001 hemochromatosis termination variant terE6 (HFE) mRNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             qn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Craniata, Vertebrata; Euteleostomi;
Catarrhini; Hominidae; Homo.
                                                   1081
                                                                                                       1141
                                                                                                                                  101
                                                                                                                                                             1201
                                                                                                                                                                                     1071
                                                                                                                                                                                                                                          1131
                                                                                                                                                                                                                                                                   1381
                                                                                                                                                                                                               AATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGGCACTACGTCTTAGCTGAACG 1261
                                                                                                                                                                                                                                                                                                                                     á
TGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCTG 1021
                         891
                                                                             951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Thenie, A., Orhant, M., Gicquel, I., Fergelot, P., Le Gall, J.Y., David, Y. and Mosser, J. The HFE gene undergoes alternate splicing processes Blood Cells Mol. Dis. 26 (2), 155-162 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'n
            GATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTACCAGGTGGAGCACCC
                                                                                                       1082 AGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCAT
                                                                                                                                                             TGGAGTCATCAGTGGAATTGCTGTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCAT
                                                                                                                                                                         GGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGTTGAACCTAAACATAGAAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              de Medecine,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Faculte
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Thenie, A., Orhant, M. and Mosser, J. Direct Submission Submitted (17-DEC-1998) UPR 41 CNRS,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bernard, Rennes 35043, France
Location/Qualifiers
1. 1200
/organism="Homo sapiens"
/db.xref="taxon:9606"
/chromosome="6"
/map="6p22"
                                                                                                                                                                                                                                                                                                                                                                                         GCCTGACGAACTCCTTGATTTTAGCCTTC 1410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapiens hemochromat
complete cds.
AF115265
AF115265.1 GI:11094314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12. .1058
/gene="HFE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (bases 1 to 1200)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (bases 1 to 1200)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="HFE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AF115265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20448010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11001625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 11
AF115265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                   1262
                                                   1022
                                                                                                                                                             1142
                                                                                                                                                                                     1012
                                                                                                                                                                                                               1202
                                                                                                                                                                                                                                          1072
                                                                                                                                                                                                                                                                                            1132
                                                                                                                                                                                                                                                                                                                       1322
                                                                                                                                                                                                                                                                                                                                                1192
                                                                                                                                                                                                                                                                                                                                                                           1382
                                                                                                                                                                                                                                                                                                                                                                                                    1252
                         832
                                                                             892
                                                                                                                                  952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                  g
                                                  δ
                                                                             g
                                                                                                       ŏ
                                                                                                                               g
                                                                                                                                                             δy
                                                                                                                                                                                     g
                                                                                                                                                                                                               οy
                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                   g
```

```
Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     243
                                                                                                                                                                                                                                                                  human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local Sin
Matches 1043;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNT
                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                    REFERENCE
AUTHORS
                                                                                          1021
                                                                                                                                                                                                                                                                                                                     TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                TITLE
JOURNAL
 1111
                                                                        1231
                                                                                                                                                                1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                   901
                                                      961
                                                                                                                                                                                         RESULT 1
AF079407
LOCUS
                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                              VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                        MEDLINE
                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BASE CC
ORIGIN
                 Dp
                                    δλ
                                                      g
                                                                        QΥ
                                                                                          g
                                                                                                            δy
                                                                                                                            q
                                                                                                                                              δ
WTIMENHNHSKESHTLQVILGCEMQEDNSTEGYWKYGYDGQDHLEFCPDTLDWRAAEP
RAWPFKLEWERHKIRARQNRAYLERDCPAOLQOLLEFGRGYLDQQVPPLVKYTHHVTS
SVTTLRCRALNYYPQNITMKWLKDKQPMDAKEFEPKDVLPNGDGTYGGWITLAVPPGE
EQRYTCOVEHFGLLDPLIVIWEPSPSGTLVIGVISGIAVFVVILFIGILFILLRKRQG
SRGAMGHYVLAERE"
                                                                                                  ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               840
                                                                                                                    270
                                                                                                                                                                                          390
                                                                                                                                                                                                            180
                                                                                                                                                                                                                             450
                                                                                                                                                                                                                                                                 510
                                                                                                                                                                                                                                                                                                    570
                                                                                                                                                                                                                                                                                                                      360
                                                                                                                                                                                                                                                                                                                                        630
                                                                                                                                                                                                                                                                                                                                                         420
                                                                                                                                                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                                                                                                                                                                                            480
                                                                                                                                                                                                                                                                                                                                                                                                             750
                                                                                                                                                                                                                                                                                                                                                                                                                               540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      999
                                                                                                   Gaps
                                                                                                                                     9
                                                                                                                                                                                         181 TGTTCGTGTTCTATGATCATGAGAGTCGCCGTGTGGAGCCCCCGAACTCCATGGGTTTCCA
                                                                                                                                                                                                                                                                          211 GAGCTGGGGAAATGGGCCCGCGGGGCCGGCGCTTCTCTCCTCCTGATGCTTTTGCAGA
                                                                                                                              1 GAGCTGGGGAAATGGGCCCGCGGAGCCAGGCCGCGTTCTCCTCCTCCTGATGCTTTTGCAGA
                                                                                                                                                       271 CCGCGGTCCTGCAGGGGCGCTTGCTGCTTCACACTCTCTGCACTACCTCTTCATGGGTG
                                                                                                                                                               1 CGCGGGTCCTGCAGGGGCGCTTGCTGCACACTCTCTGCACCTCTTCATGGGTG
                                                                                                                                                                                                                                                                                                    CCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAGGGCTACTGGA
                                                                                                                                                                                                                                                                                                                                                 CAGCAGAACCCAGGGCCTGGCCCACCAAGCTGGAAAGGCACAAGATTCGGGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCTCTTCAGTGACCACTCTACGGTGTCGGGCCTTGAACTACTACCCCCAGAACATCACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGAAGTGGCTGAAGGATAAGCAGCCAATGGATGCCAAGGAGTTCGAACCTAAAGACGTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGCCCAATGGGGATGGGACCTACCAGGGCTGGATAACCTTGGCTGTACCCTGGGGAAG
                                                                                                                                                                                                                            TGTTCGTGTTCTATGATGATGAGAGTCGCCGTGTGGGAGCCCCGGAACTCCATGGGTTTCCA
                                                                                                                                                                                                                                                                 GTAGAATTTCAAGCCAGATGTGGCTGCAGCTGAGTCAGAGTCTGAAAGGGTGGGATCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                GGCAGAACAGGGCCTACCTGGAGAGGGACTGCCTGCACAGCTGCAGCAGTTGCTGGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   811 TGGGGAGAGGTGTTTTGGACCAACAAGTGCCTCCTTTGGTGAAGGTGACACATCATGTGA
                                                                                                  0;
                                                                                                   Indels
                                                                                 ٠<u>.</u>
                                                                                                  ;;
                                                                                  DB
                                                                               Score 1185.8;
Pred. No. 0;
                                                                                                  0; Mismatches
                                             266
                                             б
                                             346
                                                                               82.3%;
99.8%;
                                             290 c
                                                                                                  Conservative
                                                                                          Similarity
                                                                               Query Match
Best Local Simi
Matches 1187;
                                            BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                 241
                                                                                                                                                                                                                                                                                                   511
                                                                                                                                                                                                                                                                                                                                       571
                                                                                                                                                                                                                                                                                                                                                                          631
                                                                                                                                                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                             691.
                                                                                                                                                                                                                                                                                                                                                                                                                                               751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1051
                                                                                                                                                                                                                             391
                                                                                                                                                                                                                                                               451
                                                                                                                                                                                                                                                                                                                     301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ρp
                                                                                                                                     g
                                                                                                                                                                     g
                                                                                                                                                                                      Ω
                                                                                                                                                                                                       g
                                                                                                                                                                                                                           οy
                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                               δy
                                                                                                                                                                                                                                                                             Ωp
                                                                                                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                                QQ
                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                    δy
                                                                                                                                                                                                                                                                                                                                                                                       οq
                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                           ÓΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                            පි
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                      οy
```

```
Homo sapiens hemochromatosis splice variant dell4E4 (HFE) mRNA, AF079407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /translation="MGPRARPALLLLMLQTAVLQGRLLRSHSLHYLFWGASEQDLGL
SLFEALGYVDDQLFVEYDHEGRRVEPRTPWVSSRISSQMWLQLSGSKGWDIHFTVDF
WTIMENHNHSKRSHTLQVILGCEMQEDNSTEGYWKYGYDGQDHLEFCPDTLDWRAAEP
WTIMENHNHSKRSHTRANGTAYLERDQQQLGLELGGRGVLDQQYTLRCRALMY
QNITWKWLRKDKQPMRXLERDQQQQLLELGGRGVLDQQYTLRCRALMYY
QNITWKWLKDKQPMAKEFERXDVLPWGDGTYQGWITLAVPPGEBQRYTCQYPHPGLD
QPLIVIWEPSPSGTLVIGVISGIAVFVVILFIGILFITIRRKQGSRGAMGHYVLAERE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Euteleostomi;
                                                                                                                1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           of Cambridge,
                                                                                                                                                                                                                                 GGGAGCCCTCACCGTCTGGCACCCTAGTCATTGGAGTCATCAGTGGAATTGCTGTTTTTG
                    186 GAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCCAGGCCGGGC
                                                                           TCGTCATCTTGTTCATTGGAATTTTGTTCATAATATTAAGGAAGAGGCAGGGTTCAAGAG
                                                                                                                                                       GAGCCATGGGGCACTACGTCTTAGCTGAACGTGACACGCACCCTGCAGACTCACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product="hemochromatosis splice variant dell4E4"
/protein_id="AAC62646.1"
/db_xref="GI:3695107"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Craniata; Vertebrata; Eutele
Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    42;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 1045;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                               CAGGAGAGAGTTGAACCTAAACATAGAAATTGCCTGACGAACTCCTTGA 1399
                                                                                                                                                                                                                                                                                                                                  he hemochromatosis
(1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           University
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 989.8; DB 9;
Pred. No. 7.7e-281;
); Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Rhodes, D.A.
Direct Submission
Direct Submission
Submitted (21-JUL-1998) Immunology, Un:
Court Road, Cambridge CB2 10P, UK
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ų
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Chordata; Crani
Mammalia; Eutheria; Primates; Catar I
(bases I to 1045)
Rhodes, D.A. and Trowsdale, J.
Alternate splice variants of the he
Immunogenetics 49 (4), 357-359 (199
99180629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="6"
/map="6p22.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               68.7%; 5
96.0%; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AF079407.1 GI:3695106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="HFE"
37. .1041
/gene="HFE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (bases 1 to 1045)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δλ
```

ä

MAM 22-OCT-2000

Euteleostomi; Ceratotherium

```
PLEFALGY VDDELEVYX NHESRRAESRAQWUCGEAHSOLWLOLSSLKGWDHMFIVDE WIT MDNHNESR ESHTLQY ILGCEVOEDNSTRGFWKYGYDGOPHLEFCPETLDNRAAES RALTTKLEWEVK IRAKQWRAYLERDCPEDQWLEIGRGKULDQOPPLWYTHVAS AVTTLECQALNFYSONITMRRALKBRREWDVROAESKDVLPSGDGTYGSWEALLYPPPGE EQRYTCQVEHPGLDQOPLATWEPSLSNTLVTGVISGIAVCVIIFFIGILFRILRKRQA
                                                                                                                                                                                                                                                                                                                                                                                                           /product-"HFE protein"
/protein_id="AAG23701.1"
/bxreff="G1:10945688"
/tb.xreff="G1:10945688"
/translation-"MGPRARPALFFLILLRTVAAQGRPPRSHSLRYLFMGASERDHGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCCAAAAGAAGCGGGAGATTAAACG 196
                                                                                                                                                                                                                               Unpublished
2 (bases 1 to 1320)
West.C.J., Worley, M. and Beutler, E.
Direct Submission
Submitted (29-AUG-2000) Molecular and Experimental Medicine, Scripps Research Institute, 10550 North Torrey Pines Road, La Jolla, CA 92037, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2 AGAGTGACTTCTTGGGTCACTCCTATTTCCCCGCCCCAAGCAGCAGCTGA-CGCGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61 AGCACCCGCGGTCCGAGCCGGGGAAATGGGCCCGCGGAGCCCGCAGCCCGCGCTCTTCTTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCGGTTCACACTCTCTGCACTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCICITCAIGGGIGCCICAGAGCAGGACCIIGGICITICCIIGITIGAAGCIIIIGGGCIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       241 TGTGGATGACGAGCTTTTCGTGGCCTACAATCACGAGAGTCGCCGTGCAGAGTCCCGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCAGTGGGTCTTGGGTGAGGCCCACAGCCAGCTGTGGCTGCAGCTGAGTCAGAGCCTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGTGGATGACCAGCTGTTCGTGTTCTATGATGATGAGAGTCGCCGTGTGGAGCCCCGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGCTGAGTCAGAGTCTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGGAAAATCACAACCACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             197 GGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCCAGGCCGGGCGCTTCTCCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 1320;
                                                                                                                                             Ceratotherium simum
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Mammalia; Eutheria; Perissodactyla; Rhinocerotidae;
I (bases 1 to 1320)
West, C.J., Worley, M. and Beutler, E.
Rhinoceros HFE Polymorphisms
                                                                 AY007541 1320 bp mRNA linear
Ceratotherium simum HFE protein mRNA, complete cds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 893.8; DB 4;
Pred. No. 1.8e-252;
0; Mismatches 227;
                                                                                                                                                                                                                                                                                                                                                    /organism="Ceratotherlum simum"
/db_xref="taxon:9807"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ų
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                279
                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               394 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SRGAMGDYVLGECE"
                                                                                          AY007541
AY007541,1 GI:10945687
                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   62.1%;
82.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               363 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
 1039 TGACACG 1045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                284
                                                                                                                                      white
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query'Match
Best Local Simi
Matches 1063;
                                                                                                                                                                                                                                                                                                                                             source
                                                                               DEFINITION
                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                 TITLE
JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COUNT
                                                                                                                                                                                                                                                                        TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         301
                                                                                             ACCESSION
                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    497
                                                                                                                      KEYWORDS
SOURCE
                                                                                                                                                                                         REFERENCE
                                                    AY007541
                                                                                                                                                                                                                                                                                                                                                                                   CDS
                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                           VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE CO
ORIGIN
                                                                  LOCUS
 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Óγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAGGAGTICGAACCTAAAGACGTATIGCCCAAIGGGGAIGGGACCTACCAGGGCTGGAIA 1025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCTTGGCTGTACCCCCTGGGGAAGACAGAGATATACGTACCAGGTGGAGCACCCAGGC 1085
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCATTGGA 1145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTCATCAGTGGAATTGCTGTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCATAATA 1205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTAAGGAAGAGCAGGCTTCAAGAGGAGCCATGGGGCACTACGTCTTAGCTGAACGTGAG 1265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              785
                                                                                                                        180
                                                                                                                                                                                                                                                                                                                                                                                                                                                   540
                                                                                           365
                                                                                                                                                 425
                                                                                                                                                                                                     485
                                                                                                                                                                                                                                300
                                                                                                                                                                                                                                                           545
                                                                                                                                                                                                                                                                                     360
                                                                                                                                                                                                                                                                                                               605
                                                                                                                                                                                                                                                                                                                                         420
                                                                                                                                                                                                                                                                                                                                                                     665
                                                                                                                                                                                                                                                                                                                                                                                               480
                                                                                                                                                                                                                                                                                                                                                                                                                         725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      905
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      305
            9
546 CACAACCACAGCAAGGAGTCCCACACCTGCAGGTCATCCTGGGGCTGTGAAATGCAAGAA
                                                                                                                                                                                                                                                                                                                                726 TGGGAAAGGCACAAGATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACTGCCCT
                                      CITCICCICCIGAIGCITITGCAGACCGCGGICCIGCAGGGGGCGCTIGCTGCGTTCACAC
                                                                                          306 TCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGTTTGAA
                                                                                                                                                GCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATGATGAGAGTCGCCGTGTG
                                                                                                                                                              GAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGCTGAGT
                                                                                                                                                                                                                  241 GAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGCTGAGGT
                                                                                                                                                                                                                                                          CAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGGAAAAT
                                                                                                                                                                                                                                                                                                                                                                  GACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGCGCAGGACCACCTTGAATTC
                                                                                                                                                                                                                                                                                                                                                                                                                        TGCCCTGACACACTGGATTGGAGGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGCTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCACAGCTGCAGCAGTTGCTGGAGCTGGGGAGGTGTTTTGGACCAACAAGTGCCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            846 TIGGIGAAGGIGACACAICAIGIGACCICITCAGIGACCACICIACGGIGICGGGCCIIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              906 AACTACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGGATGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGACACG 1272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              651
                                      246
                                                                                                                                                366
                                                                                                                                                                         181
                                                                                                                                                                                                    426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1266
                                                               61
                                                                                                                   121
                                                                                                                                                                                                                                                          486
                                                                                                                                                                                                                                                                                                                                                                  909
                                                                                                                                                                                                                                                                                                                                                                                                                        999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       919
           음
                                                              g
                                                                                                                   셤
                                                                                                                                                                   g
                                                                                                                                                                                                   ò
                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                            qq
                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                        q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                      ç
                                                                                         ô
                                                                                                                                                ò
                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                             Óγ
                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
```

3

Gaps

ď,

316 180 436

g δ 엄 δy g ò qq

g

à

셤

οy

q

δ

8

δ g ò g ò

òγ

q

ò g ò g

ò g οy 엄

```
SRGAMGDYVLAECE'
                                                                                                                                                                                                                                                                                                                                                                        62.1%;
ilarity 82.2%;
Conservative
                                                                                                                                                                                                                                                                                                                           358 c
                                                                                                                                                                                     .1132
                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                            281
                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Simil
Matches 1063; C
                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                           BASE COUNT
ORIGIN
                                                          JOURNAL
REFERENCE
AUTHORS
                                    AUTHORS
TITLE
                                                                                             TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                           ~
                                                                                                                                                                                                                                                                                                                                                                                                                      137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               617
                          REFERENCE
                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Óλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δy
                                                                                                                                                                                                                                                                                                                                                                                                                      òγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MAM 22-OCT-2000 cds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGCTCTTCATGTTTCAGGAGAGTTGAACCTAA - ACATAGAAATTGCCTGACGAACTCC 1395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1200 CATTCTTTGTGTTTCAGGACAGAGTTGAACCTAACAAATGGGAACTGTCCCAGGAGGTT 1259
                                                                                                                                                                                                                                                                                                                                                            ACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCTGGATAACCTTGGCTGT 1036
                                                                                                                                                                                                                                                                                                                                                                                                        1037 ACCCCCTGGGGAAGAGCAGAGATATACGTACCAGGTGGAGCACCCAGGCCTGGATCAGCC 1096
                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCATTGGAGTCATCAGTGG 1156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AATTGCTGTTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCATAATATTAAGGAAGAG 1216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAGAGGGGGGGTGCATTTATG 1336
                                                                                                                                                                                                                                                                                                                                                                                    900
                                                                                919
                                                                                                                                                   900
                                                                                                                                                                          96/
                                                                                                                                                                                    856
                                                                                                                                                                                                                                                                                         780
                                                                                                                                                                                                                                                                                                                916
GCCCCTGGGGAAGAGCAGAGATATACCTGCCAGGTGGAGCACCAGGCCTGGATCAGCC
                                                                                                                                        GCAGTTGCTGGAGCTGGGGAGAGGTGTTTTGGACCAACAAGTGCCTCCTTTGGTGAAGGT
                                                                                                                                                                                                                                                                                                             CCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGGATGCCAAGGAGTTCGA
                                                                                                                                                                                                                                                                                                                            CAAGGAGTCCCACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTAC
                                             CGAGGGCTACTGGAAGTACGGGTATGATGGGCAGGACCACCTTGAATTCTGCCCTGACAC
                                                                                             CAGGGGTTTCTGGAAGTACGGGTACGATGGGCAGGACCATCTTGAATTCTGCCCTGAGAC
                                                                                                                           ACTGGATTGGAGAGCAGCAGGAACCCAGGGCCTGGCCCACCAAGCTGGAGTGGGAAAGGCA
                                                                                                                                                                        CAAGATTCGGGCCAGGAAACAGGGCCTACCTGGAGAGGGACTGCCCTGCACAGCTGCA
                                                                                                                                                                                                                                  GTGGTTGCTGGAGCTGGGGAGAGAGGGTTCTGGACCAGCAAGTGCCTTTTGGTGAAGGT
                                                                                                                                                                                                                                                                 GACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGGCCTTGAACTACTACCC
                                                                                                                                                                                                                                                                             linear
complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1320 bp mRNA
HFE protein mRNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTGATTTTAGCCTTCTCTGTTCATTTCCTCAAA 1428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1260 CIGCICITAGCCTICCCIGITCACTCTCAAAAA 1292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sumatrensis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GI:10945691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AY007543
Dicerorhinus s
AY007543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AY007543.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                     1097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 14
            361
                                                        421
                                                                              617
                                                                                                     481
                                                                                                                                                                        737
                                                                                                                                                                                            601
                                                                                                                                                                                                                                          661
                                                                                                                                                                                                                                                                                                               917
                                                                                                                                                                                                                                                                                                                                                                                                                              901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1157
                                 557
                                                                                                                           677
                                                                                                                                                                                                                   797
                                                                                                                                                                                                                                                                 857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
SOURCE
```

Dicerorhinus sumatrensis

ORGANISM

VERSION

AY007543

g

Sumatran rhinoceros

```
/codon_start=1
/product="HEE protein"
/product="HEE protein"
/protein_id="AAG23703.1"
/db_xref="G1:100445692"
/translation="MGPRARPALFFILLLRTVAAQGRPPRSHSLRYLFMGASERDHGL
PLFEALGYVDDELFVAXNHEGRRAESRAQWVLGEAHSQLMLQLSQSLKGWDHWFIVDF
WTIMDNHHNFKSHTLQVILGCEVQEDNSTREFWKYGYDGQDHLEFCPETLOWRAAES
RALTYKLEWEVNK PRAKQNRALERDCPEQLQMLLEGGRGVLDQQVPPLVKYTHHVAS
AVTTLRCQALNYYPQNITMRWLKDRKPYDVKAAESKDVLPSGGGTVLQQQVPPLVKYPHVAS
EQRYTCQVEHFGGLDQPLTATWEPSLSNTLVTGVISGIAVCVIIFLIGILFRILKRQA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ÷
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Perissodactyla; Rhinocerotidae; Dicerorhinus. I (bases 1 to 1320)
West, C.J., Worley, M. and Beutler, E. Rhinoceros HFE Polymorphisms
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGTTTGAAGCTTTGGGCTA 376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGTGGATGACCAGCTGTTCGTGTTCTATGATGATGAGAGTCGCCGTGTGGAGCCCCGGAAC 436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CAAGGAGTCCCACACACCTGCAGGTGATCCTGGGCTGTGAGGTGCAAGAGGACAACAGCAC 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACTGGATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGCTGGAGTGGGAAAGGCA 736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                           Unpublished
2 (bases I to 1320)
2 (bases I to 1320)
West,C.J., Worley,M. and Beutler,E.
Direct Submission
Submitted (29-AUG-2000) Molecular and Experimental Medicine,
Scripps Research Institute, 10550 North Torrey Pines Road, La
Jolla, CA 92037, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCCAAAAGAAGAGCGGAGATTTAACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    197 GGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGGGCCAGGCCGGCGCTTCTCCCTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCAGTGGGTCTTGGGTGAGGCCCACAGCCAGCTGTGGCTGCAGCTGAGGCCTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGCACCCGCGGTCCGAGCCGGGGAAATGGGCCCGCGAGCCCGCGCGCTTTTTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            241 TGTGGATGACGAGCTTTTCGTGGCGTACAATCATGAGAGTCGCCGTGCAGAGTCCCGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGGGGGGATCACAGTTCACTGTTGACTTCTGGACTATTATGGAAAATCACAACCACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CAAGGAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGCTGAGTCAGAGTCTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CAGGGGGTTCTGGAAGTACGGGTACGATGGGCAGGACCATCTTGAATTCTGCCCTGAGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGAGGGCTACTGGAAGTACGGGTATGATGGGCAGGACCACCTTGAATTCTGCCCTGACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ë
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 1320;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                 1. .1320
/organism="Dicerorhinus sumatrensis"
/db_xref="taxon:89632"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 893.8; DB 4;
Pred. No. 1.8e-252;
0; Mismatches 227;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ų
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       283
                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     398 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
```

```
279
            source
                                                                                                                                                                    COUNT
                                                                                                                                                                                                                                                   137
                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                     257
                                                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                                             317
                                                                                                                                                                                                                                                                                                                                                                                                                    377
                                                                                                                                                                                                                                                                                                                                                                                                                                                             437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     661
FEATURES
                                         CDS
                                                                                                                                                                              ORIGIN
                                                                                                                                                                    BASE
                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                              qq
                                                                                                                                                                                                                                                                                                                                     Óλ
                                                                                                                                                                                                                                                                                                                                                        pp
                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                     q
                                                                                                                                                                                                                                                                                                                                                                                                                                                             ολ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δý
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           pp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                    δý
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MAM 22-0CT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Euteleostomi;
Rhinoceros.
                                                                                                                                                                                                                                        1156
                                                                                                                                                                                                                                                                                            1021 GATTGCTGTTTGTGTCATCATCTTCCTCATTGGAATTTTGTTCAGAAATCTTAAGGAAAAG 1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                             1200 CGTTCTTCGTGTTTCAGGACAGAGTTGAACCTAACAAATGGGAACTGTCCCAGGAGGTCT 1259
                                                                                                                                                                                                 977 ACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCTGGATAACCTTGGCTGT 1036
                                                                                                                                                                                                                                                                                                                         AATTGCTGTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCATAATATTAAGGAAGAG 1216
                                                                                                                                                                                                                                                                                                                                                                   CTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAGAGGGGAGTGCATTTATG 1336
                                                                                                                                                                              840
                                                                                                                                                                                                                      006
                                                                        856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ľa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Unpublished 2 (bases 1 to 1319)
West, C.J., Worley, M. and Beutler, E.
Direct Submission
Submitted (29-AUG-2000) Molecular and Experimental Medicine,
Scripps Research Institute, 10550 North Torrey Pines Road, La
                                                                                  CCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCATTGGAGTCATCAGTGG
                                                                                                                                                                                                                                                                                                                                                                             1337 AGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAA-ACATAGAAATTGCCTGACGAACTCC
         ACTGGATTGGAGAGCAGAGTCCAGGGCGCTGACCACCAAGCTGGAGTGGGAAGTGAA
                                                                       GCAGTTGCTGGAGCTGGGGAGAGGTGTTTTGGACCAACAAGTGCCTCCTTTGGTGAAGGT
                                                                                                                GACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGGCCTTGAACTACTACCC
                                                                                                                                                          CCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGGATGCAAGGAGTTCGA
                                                                                                                                                                                                            CAAGATTCGGGCCAGGAACAGGGCCTACCTGGAGAGGGACTGCCCTGCACAGCTGCA
 Rhinoceros unicornis
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Mammalia; Eutheria; Perissodactyla; Rhinocerotidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             мгоу/э44 119 bp mRNA linear
Rhinoceros unicornis HFE protein mRNA, complete cds.
AY007544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1396 TTGATTTTAGCCTTCTCTGTTCATTTCCTCAAA 1428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1260 CTGCTCTTAGCCTTCCCTGTTCACTCTCAAAAA 1292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 (bases 1 to 1319)
West,C.J., Worley,M. and Beutler,E.
Rhinoceros HFE Polymorphisms
greater Indian rhinoceros.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AY007544.1 GI:10945693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
AUTHORS
TITLE
JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                 1217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
VERSION
                                                                                                                                                                                                                                        1037
                                                                                                                                                                                                                                                                                                                          1157
         541
                                                  601
                                                                     797
                                                                                           661
                                                                                                                                                        917
                                                                                                                                                                            781
                                                                                                                                                                                                                                                                                 1097
                                                                                                                                                                                                                                                                                                      961
                             737
                                                                                                                857
                                                                                                                                   721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 1
AY007544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LOCUS
                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                           QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     염
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               원
         요
                              ð
                                                 셤
                                                                     ò
                                                                                         g
                                                                                                                õ
                                                                                                                                   g
                                                                                                                                                      ó
                                                                                                                                                                          g
                                                                                                                                                                                                ò
                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                          ç
                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
```

```
/product="HFE protein"
/product="HFE protein"
/protein_id="AAG23704.1"
/protein_id="AAG23704.1"
/brotein_id="AAG23704.1"
/brotein_id="C1:10945849"
/translation="MorrarpaleFililleryAAOGRPPRSHSLRYLEMGASERDHGL
PLFEALGYVDDELFVAYNHESRRAESRAQWYLGEAHSQLWLQLSQSLKGWDHMFIVDF
WTIMDNHHNSRESHTLCVILGCEVQEDNSTRCFWMYCYDGQHLEFCPETLDWRAAES
RALTTKLEWEVNKIRAKQNRAYLERDCPEOLGWLLELGRGVLDQQVPPLVKYTHHVAS
AVTTLRCQALRFYPQNITMRWLKDRKPYDVRQAESRUYLPSGDGTYGSWVALAVPPGE
EQRYTCQVEHPGLDQPLTATWEPSLSNTLVTGVISGIAVCVIIFLIGILFRILRKRQA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ς;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                796
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCCAAAAGAAGCGGGAGATTTAACG 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGAGGGCTACTGGAAGTACGGGTATGATGGGCAGGACCACCTTGAATTCTGCCCTGACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACTGGATTGGAGAGCAGCAGAGTCCAGGCCCTGACCAAGCTGGAGTGGAAGTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2 AGGGTGACTTCTTGGGTCACTCCTATTTCCCCGCCCCACCGAAGCAGCTGAA-CGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   197 GGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGGGGAGCCAGGCCGGCGCTTCTCCTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGCACCCGCGGTCCGAGCCGGGGAAATGGGCCCGCGAGCCCGCGCGCCTTCTTCTTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GAIGCITITIGCAGACCGCGGICCIGCAGGGGCCCTIGCTGCGTTCACACTCTCTGCACTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGTTTGAAGCTTTGGGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181 cererrearegecerereagegeacearegecrecerecererraaagecrregecra
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   241 TGTGGATGATGAGCTTTTCGTGGCCTACAATCACGAGAGTCGCCGTGCAGAGTCCCGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGCTGAGGTCAGAGTCTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCAGTGGGTCTTGGGTGAGGCCCACAGCTGTGGCTGCAGCTGAGCTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGGCCTTGAACTACTACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGTGGATGACCAGCTGTTCGTGTTCTATGATGATGAGAGTCGCCGTGTGGAGCCCCGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGGAAAATCACAACCACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CAAGGAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CAGGGGGTTCTGGATGTACGGGTACGACGGCAGGACCATCTTGAATTCTGCCCTGAGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACTGGATTGGAGGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGCTGGAGTGGGAAAGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCAGTTGCTGGAGCTGGGGAGAGGTGTTTTGGACCAACAAGTGCCTCCTTTGGTGAAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTGGTTGCTGGAGCTGGGGAGAGGGGTTCTGGACCAGCAAGTGCCTCCTTTGGTGAAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 1319;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 893.6; DB 4;
Pred. No. 2.1e-252;
0; Mismatches 234;
                                                unicornis"
                                                                                                                                                                                                                                                                                                                                                                        u
                                                                                                                                                                                                                                                                                                                                                                        280
                                           /organism="Rhinoceros
/db_xref="taxon:9809"
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                        397 g
                                                                                                                                                                                                                                                                                                                                                     SRGAMGDYVLAECE"
                                                                                                                   /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 62.1%;
Best Local Similarity 81.7%;
Matches 1056; Conservative
                                                                                                                                                                                                                                                                                                                                                                        363 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŏ
```

```
1097 CCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCATTGGAGTCATCAGTGG 1156
                                                                                                         CTGCAGACTCACTGTGGGAAGGACAAAACTACAGACTCAAAGAGGGAGTGCATTTATG 1336
                                                                                                                                                                                        1337 AGCTCTTCATGTTTCAGGAGAGATTGAACCTAAACATAGAAATTGCCTGACGAACTCCT 1396
                                                                                                                                                                                                                  1200 CGTTCTTCGTGTTTCAGGACAGAGTTGAACCTAACAATGGGAACTGTCCCAGGAGGTCT 1259
                           917 CCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGGATGCCAAGGAGTTCGA
                                                                                                                                                                                                                                      1397 IGAITTIAGCCTICTCTGTTCATTICCTCAAA 1428
                                                                                                                                                                                                                                              1260 CTCTCTTAGCCTTCCCTGTTCACTCTCAAAA 1291
                                                                                                                                                                                 1277
       셤
                               ΩD
                                            QY
Db
                                                                    QY
Db
                                                                                                                                                                                 δy
                                                                                                                                                                                              g
                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                       ŏ
                    Óγ
                                                                                                                                                                                                            δ
```

Search completed: June 19, 2002, 08:24:38 Job time: 6364 sec

		•	
·			
			•

BF464345 UI-M-CGOP AZ025590 RPCI-23-3 AW902003 QVO-NN102 AZ074871 RPCI-23-4 BG402460 602466163 AL532717 AL532717 AL532717 AL532717 AZ025784 RPCI-23-3 AQ703007 H3544 BST109830 AZ025784 AL513728 AL513728 AL513728 AL513728 AK005051 Mus muscu

BE232472 137492 MA BE832514 603082113 AL5404088 AL5404088 BM477276 AGENCOURT BC691825 341215 BA AL541347 AL541347 AL542403 AL554103 AL557373 AL557373

BM465674 AGENCOURT AL547313 AL547313 BG680802 602628602

AL545738 AL545738 AL541209 AL541209 AL560013 AL560013 AL558822 AL558822 AL535151 AL535151 AL53924 AL539924

Perfect score:

Seguence:

OM nucleic

Run on:

Scoring table:

Searched:

Minimum DB Maximum DB

Database

```
Homo sapiens

Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostom1;

Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostom1;

Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

I (bases 1 to 819)

S NIH-MGC http://mgc.nci.nih.gov/.

NIH-MGC http://mgc.nci.nih.gov/.

Unpublished (1999)

Contact: Robert Strausberg, Ph.D.

Email: Gapbs refmail.nih.gov

Tissue Procurement: ATCC

CDNA Library Preparation: Ling Hong/Rubin Laboratory

CDNA Library Preparation: Ling Hong/Rubin Laboratory

CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)

DNA Sequencing by: NIH Intramural Sequencing Center

Clone distribution: MGC clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at:

found through the I.M.A.G.E. Consortium/LLNL at:

http://image.llnl.gov

Plate: LLCM1711 row: d column: 06

High quality sequence stop: 792.
                                                                                                                                                                                                                                                                                                                                                                                    BG747345 819 bp mRNA linear EST 15-MAY-2001 602704818F1 NIH_MGC_15 Homo sapiens cDNA clone IMAGE:4857941 5',
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /clone_lib="NHH_MGC_15"
/tissue_type="adenocarcinoma cell line"
/lab_host="DH10B (phage-resistant)
/lab_host="DH10B (phage-resistant)
/note="Organ: colon; Vector: pOTB7; Site_1: XhoI; Site_2: EcoRI; cDNA made by oligo-dT priming. Directionally adoptor: GCORGAGG(S). Size-selected >500bp for average insert size 1.8kb. Library constructed by Ling Hong in
                                                                                                                                                                                                                                                                                                                                 ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Homo sapiens"
/db_xref="taxon:9606"
/clone="IMAGE:4857941"
                                                                                                                    AL545738
AL541209
AL560013
AL558822
AL535151
AL539924
BM465674
                                                                                                                                                                                                                     BE232472
BI832514
AL540488
BM477276
BG691825
                                           BG402460
AL532717
                                                               H33644
AZ025784
AQ703007
AL513728
                                                                                                                                                                                               AL547313
BG680802
                                                                                                                                                                                                                                                                                                AL557373
                                                                                                                                                                                                                                                                                                                                                                                                         mRNA sequence.
BG747345
BG747345.1 GI:14057998
                                                                                                                                                                         , 61666
10666
10666
 9010
                                           human.
174
168.8
160.1
155.2
154
152
151.8
150
                                                                                                                      141.6
140.1
130.8
137.8
137.6
131.4
131.4
131.1
131.1
131.1
131.1
131.1
131.1
131.1
131.1
131.1
131.1
130.1
                                                                                                                                                                                                                                                                                                                                                                                   LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
AUTHORS
TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                         BG747345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
 000
                                                                      June 19, 2002, 07:21:40 ; Search time 2546.54 Seconds (without alignments) 7632.166 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BG747345 602704818
AK009581 Mus muscu
BE272926 601171213
BF883952 PM4-ET020
B1339179 364041 MA
BF080089 230846 MA
BE944943 UT-M-GG0P
AI850020 UT-M-BG0-
BE995172 UT-M-GG0P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         W21141 zb51g06 r1
BB809138 214520 MA
BB851691 BB851691
B1452668 603169877
BB888165 BB858165
BR465475 UI-M-CGOP
BC005306 HOMO sapi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AA217236 mu89b05.r
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                       1 GGGGACACTGGATCACCTAG......TCCTCAAAAAGATTTCCCCA 1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Description
                                                                                                                                                                                                                     27472414
         GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                              13736207 seqs, 6748477542 residues
                                                                                                                                                                                                                  Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SUMMARIES
                                                                                                                                                                                                                                                                        Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                    - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BF883952
BI339179
BF080089
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AI850020
BE995172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BE994943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BE809138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AA217236
                                                                                                                                                              IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BB851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ΩĪ
                                                                                                                                                                                                                                         seq length: 0 seq length: 2000000000
                                                                                                                    US-09-497-957-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                  gb_gss:*
em_gss_hum:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        em_gss_inv:*
em_gss_pln:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         010610
                                                                                                                                                                                                                                                                                                                            em_estba:*
em_estbum:*
em_estbu:*
em_estbu:*
em_estco:*
em_estro:*
em_estro:*
em_estro:*
em_estro:*
em_estro:*
em_estro:*
em_estro:*
em_estro:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             em_gss_vrt:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Match Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                         gb_htc:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    523
489
457
457
464
464
481
502
3392
1208
                                                                                                                                                                                                                                                                                                                 EST:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           433.8
109.6
109.6
109.6
109.6
109.6
109.6
109.7
109.7
109.7
109.7
109.8
```

BF465475 BC005306

BB858165

214.6 209.6 202.2 197.2 196.6

ပ

Score

Š.

Result

735.4 630.6 630.6 3356.4 282.6 275 275 27.8 271.4 248.4 230

O

```
S. Gadeni, J., Aizawa, K., Akahira, S., Akimura, T., Aono, H., Arai, A., Arakawa, T., Baldarelli, R., Bono, H., Brownstein, M., Bult, C., Arakawa, T., Baldarelli, R., Bono, H., Brownstein, M., Hangagaki, T., Hara, A., Hayatsu, M., Hill, D., Hiramoto, K., Hiracka, T., Hori, F., Hume, D., Imotani, K., Ishii, Y., Itoh, M., Izawa, M., Kasukawa, T., Kato, H., Kawa, T., Konno, H., Kouda, M., Koya, S., Kato, H., Kawa, J., T., Kojima, Y., Konno, H., Kouda, M., Koya, S., Kurihara, C., Matsuyama, T., Miyazaki, A., Nishi, K., Nomura, K., Numazaki, R., Ohno, M., Okazaki, Y., Okido, T., Owa, C., Quackenbush, Salto, R., Sakai, K., Sano, H., Saski, D., Schriml, L., Shibata, K., Shibata, Y., Shinagawa, A., Shiraki, T., Tanaka, T., Tanaka, T., Tanaka, T., Tanaka, T., Tanaka, T., Talima, Y., Toya, T., Yamanaka, I., Yasunishi, A., Yoshida, K., Yoshino, M., Muramatsu, M. and
                                                                                                                                                                                                                                                                                                                     Sistes)
Carninci, P., Shibata, Y., Hayatsu, N., Sugahara, Y., Shibata, K.,
Carninci, P.,
Itoh, M., Konno, H., Okazaki, Y., Muramatsu, M. and Hayashizaki, Y.
Normalization and subtraction of cap-trapper-selected cDNAs to
prepare full-length cDNA libraries for rapid discovery of new genes
Genome Res. 10 (10), 1617-1630 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Shibata,K., Itoh,M., Alzawa,K., Nagaoka,S., Sasaki,N., Carninci,P., Shibata,K., Itoh,M., Alzawa,K., Natsunai,T., Tashiro,H., Itoh,M., Sumi,N., Ishii,Y., Nakama,J., Hazama,M., Nishine,T., Harada,A., Yamamoto,R., Matsumoto,H., Sakaguchi,S., Ikegami,T., Rashiwagi,K., Fujiwake,S., Inoue,K., Togawa,Y., Izawa,M., Ohara,E., Watshiki,M., Yoneda,Y., Ishikawa,T., Ozawa,K., Tanaka,T., Matsuura,S., Kawai,J., Okazaki,Y., Muramatsu,M., Inoue,Y., Kira,A. and Hayashizaki,Y. RKEN integrated sequence analysis (RISA) system-384-format sequencing pipeline with 384 multicapillary sequencer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Submitted (10-JUL-2000) Yoshihide Hayashizaki, The Institute of Physical and Chemical Research (RIKEN), Laboratory for Genome Exploration Research Group, RIKEN Gemomic Sciences Center (GSC), RIKEN Yokohama Institute; 1-7-25 Suehiro-cho, Tsurumi-ku, Yokohama, Kanaqawa 230-0045, Japan (E-mail:genome-res@gsc.riken.go.jp, URL:http://genome.gsc.riken.go.jp/, Tel:81-45-503-9222,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                   Chordata; Craniata; Vertebrata; Euteleostomi;
                                                           Mus musculus (strain:C57BL/6J) adult male tongue cDNA to mRNA, clone_lib:RIKEN full-length enriched mouse cDNA library clone:2310032M04.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4 (sites)
The RIKEN Genome Exploration Research Group Phase II Team and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Functional anotation of a full-length mouse cDNA collection Nature 409, 685-690 (2001) 5 (bases 1 to 1723)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Please visit our web site (http://genome.gsc.riken.go.jp/)
                                                                                                                                                                                         1 (sites)
Carninci, P. and Hayashizaki, Y.
High-efficiency full-length cDNA cloning
Meth. Enzymol. 303, 19-44 (1999)
                                                                                                                                                                       Rodentia;
                                                                                                                                                   Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Fax: 81-45-503-9216)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FANTOM Consortium.
                   AK009581.1 GI:128
HTC; CAP trapper.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 further details.
                                                                                                                                Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11042159
3 (sites)
                                                                                                                                                                                                                                                                                                     10349636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11076861
                                                                                                                                ORGANISM
                                                                                                                                                                                                                                     TITLE
JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PUBMED
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
JOURNAL
    ACCESSION
                   VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                     PUBMED
                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMMENT
                                                                                                                                                                                             3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HTC 19-JAN-2002
the laboratory of Gerald M. Rubin (University of
California, Berkeley) using ZAP-CDNA synthesis kit
(Stratagene) and Superscript II RT (Life Technologies)"
201 c 235 g 181 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AK009581 1723 bp mRNA linear HTC 19-JAN-2
Mus musculus adult male tongue cDNA, RIKEN full-length enriched
library, clone:2310032M04:hemochromatosis, full insert sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GACGTATTGCCCAATGGGGATGGGACCTACCAGGGCTGGATAACCTTGGCTGTACCCCCT 1043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCATTGGAGTCATCAGTGGAATTGCT 1163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      300
                                                                                                                                                                                                                                                                                                                       GTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGCTGAGTCAGAGTCTGAAAGGGTGG 503
                                                                                                                                                                                                                                                                                                                                                                                                           563
                                                                                                                                                                                                                                                                                                                                                                                                                               683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TGGAGAGCAGAAACCCA-GGCCTGGCCCACCAAGCTGGAAGGGGAAAGGCACAAGATT 359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATCACCATGAAGTGGCTGAAGGATAAGCAG-CAATGGATGCCAAGGAGTTCGAACCTAAA 598
                                                                                                                                                                                                                                     384 GACCAGCTGTTCGTGTTCTATGATGATGAGGTCGCCGTGTGGGGCCCCGGACTCCATGG 443
                                                                                                                                                                                                                                                                                                                                                                 GTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGCTGAGGTCAGAGTCTGAAAGGGTGG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGGCCAGGCAGACAGGGCCTACCTGGAGAGGGACTGCCCTGCACCTGCAGCTGCAGTTG 803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGGATGCCAAGGAGTTCGAACCTAAA 983
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GACGTATTGCCCAATGGGGATGGGACCTACCA-GGCTGGATAACCTTGGCTGTACCCCCT 657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GIGAICTIGGGAGCCCICACGICIGGCACCIAGICAIIGGAAGICAICCAGIGGAAIIGC 777
                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                           CATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGGCCTTGAACTACTACCCCCAGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGGGAAGAGAGATATACGTACCAGGTGGAGCACCCAGGCCTGGATCAGCCCCTCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GATCACATGTTCACTGTTGACTTCTGGACTATTATGGAAAATCACAAACCACAGCAAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TACTGGAAGTACGGGTATGATGGGCAGGACCACCTTGAATTCTGCCCTGACACTGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGGAGAGCAGCAGCAGGGCCTGGCCCACCAAGCTGGAGTGGGAAAGGCACAAGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTGGAGCTGGGGAGGTGTTTTGGACCAACAAGTGCCTCCTTTGGTGAAGGTGACACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .
ن
                                                                                                                                                 Length 819;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1164 GTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCATAAT 1204
                                                                                                                                                   DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGTTTTGTCGTCATCTTGTTCCTTGGAATTTTGTTCATAAT 818
                                                                                                                                                                     8e-194;
                                                                                                                                                 Score 735.4; I Pred. No. 3.8e-0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1723 bp
                                                                                                                                                   51.18;
95.98;
                                                                                                                                                                                             Conservative
                                                                                                                                                                       Similarity
                                                                  æ
                                                                202
                                                                                                                                                                                           787;
                                                                                                                                                   Query Match
                                                                                                                                                                            Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LOGUS
DEFINITION
                                                                                                                                                                       Best Loca
Matches
                                                                BASE COUNT
                                                                                                                                                                                                                                                                               Н
                                                                                                                                                                                                                                                                                                                         444
                                                                                                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             718
                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
AK009581
                                                                                   ORIGIN
                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
```

for

Wed

m

```
mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 3
BE272926
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                           801
                                                                                                                                                                                                                                                                                                                                                                                  861
                                                                                                                                                                                                                                                                                                                                                                                                                                          921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1400
                   354
                                             525
                                                                                                                                                          621
                                                                                                                                                                                                               681
                                                                                                                                                                                                                                                                       741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1041
                                                                                                  561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1298
                                                                                                                         g
                                                                                                                                                                                                                                         g
                                            δ
                                                                     g
                                                                                                δ
                                                                                                                                                                                   g
                                                                                                                                                                                                             οy
                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                           QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                          ð
                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                           Qγ
                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                               /translation="MSISAGIPVRPLILILIMSVAPQALPPRSHSIRYLFWGASEPDIGLPLFEARGYVDDQLFVSYRPLILIMSVAPQALPPRSHSIRYLFWGASEPDIGLEVEFEARGYVDDQLFVSYRHESRRAEPRAPMILEOTSSQLWLHLSQSLKGWDYMFTUGFPRYVGYDGDDHLEFTOFFWITMSANETGAWATKVGYVSEBILLQVVLGCEFWHEDWSTSGFWRYGYDGDDHLEFTOFFTUWWSAABPGAWATKVEMDEHKIRARONRDFYLEKDCFPEQIKRLLELGRGVLGQVVPTUWAYRDFSIRRCQALDFFPQNITWRWLDNQPLDAKDVWPEKVLENGGOVPGULTAKVARDGPETYGOVFPRONITWRWLENDNQPLDAKDVWPEKVLENGGOFTUGFTLELLELGRGFTATGOVFPGLGOVFTASWEPLQSQAMIIGIISGVTVCAIFLVGIFFLILEKRRKASGGTWGGYVLTDCE"
             through one round of normalization to Rot = 5.0 and subtraction to CAC = 25.0. Second strand cDNA was prepared with the primer adapter of sequence [5. GAGAGAGAFTCTCGAGTTAATTAAATTCCCCCCCCCCCC 3']. cDNA was cleaved with Xhol and Sstl. Cloning sites, 5' end: Xhol; 3' end: Sstl.
subsequently enriched for full-length by cap-trapper. cDNA went bugh one round of normalization to Rot =5.0\,\mathrm{and} subtraction to
                                                                                                                                                                                                      /tissue_type="tongue"
/clone_lib="RIKEN full-length enriched mouse cDNA library"
/dev_stage="adult"
99. .117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ė;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CIGGGCAICICCTGAGCCTAGGCAATAGCTGTAGGGTGACTICTGGAGCCATCCCCGTTT 164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCCCGCCCCCCAAAAGAAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATG 224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGGCGCTTGCTGCGTTCACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGAC 344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CAGATGTGGCTGCAGCTGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGAC 524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGGGAGAGGTCTGGAACCTCAGCAATGGCTACAGGGGGACTTCTTGGATCCTCCACGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCAGATCCTAGTGAAGACCGGTGGACCCAGC-----TGAGGACATGAGCCTATCAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGCCCGCGAGCCAGGCCGGCGCTTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTTGGTCTTTCCTTGTTTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GATGATGAGAGTCGCCGTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ore 630.6; DB 11; Length 1723; ed. No. 1e-164;
Mismatches 359; Indels 48;
                                                                                                                                                                                                                                                                                                             source key:MGI:109191
                                                                                                            1. 1723
/organism="Mus musculus"
/strain="C57BL/6J"
/db_xref="MGD:MGI:1905246"
/db_xref="taxon:10090"
/clone="2110032M04"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ų
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 630.6;
Pred. No. 1e-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              407
                                                                                                                                                                                                                                                                                                                                                                             /protein_id="BAB26373.1"
/db_xref="GI:12844463"
                                                                                                                                                                                                                                                                                             /gene="Hfe"
/note="data source:MGD,
                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               б
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              'note="putative"
                                                                                                                                                                                                                                                                                                                                      hemochromatosis
                                                                                                                                                                                                                                                                                                                                                                  /codon_start=1
                                                                                                                                                                                                                                                  /gene="Hfe"
99.
                                                                                                                                                                                                                                                                                                                         evidence: ISS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    43.8%;
70.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            456 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         polyA_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches 954;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  polyA_site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COUNT
                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         394
                                                                                                                                                                                                                                                                               CDS
                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE CO
ORIGIN
```

g

ŏ qq ò g

g ò

ŏ g δ

ŏ g ŏ

```
BE272926 570 bp mRNA linear EST 13-JUL-2000 601171213F1 NIH_MGC_14 Homo sapiens CDNA clone IMAGE:3544803 5',
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCTGGATAACCTTGGCTGTACCC 1040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CITCAIGTITCAGGAGAGAGATGAACCIAA-ACAIAGAAAITGCCIGACGAACICCITGA 1399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCATTGGAGTCATCAGTGGAATT 1160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCTGTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCATAATATTAAGGAAGAGGCAG 1220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAGAGGGAGTGCATTTATGAGCT 1340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----CTGTAGGACACAGTTGGACCTAACACAGAAACTGCCTGAGAA---CTGTGC 1297
                                                                                                                                                                                                                                                                                                 800
                                                                                                                                                                                                                                                                                                                                                                                860
                                                                                                                                                                                                                                                                                                                                                                                                                       773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      833
                                                                                                                                                        TIGCIGGAGCTGGGGAGAGGTGTTTGGACCAACAAGTGCCTCCTTTGGTGAAGGTGACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGCTGGAGTGGGAAAGGCACAAG
                                                                                                                                                                                                                                       594 AACTGGAGCGAGCCGAGGGGCCTGGGCCACCAAGGTGGAATGGGACGAGGAAG
                                                                                                                                                                                                                                                                                                 ATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACTGCCCTGCACAGCTGCAGCAG
                                                                                                                                                                                                                                                                                                                       714 CTCCTGGAGCTGGGGAGAGGCGTTCTGGGACAGCAAGTGCCTACTTTGGTGAAAGTGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGGATGCCAAGGAGTTCGAACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAG
                                                                                                                                  GGCTACTGGAAGTACGGGTATGATGGGCAGGACCACCTTGAATTCTGCCCTGACACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                              CATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGGCCTTGAACTACTACCCCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCTGGGGAAGAGAGATATACGTACCAGGTGGAGCACCCAGGCCTGGATCAGCCCCTC
```

```
979 CTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGCTGGATAACCTTGGCTGTAC 1038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCAGGIGTICGIGITCIAIGAIGAIGAGAGICGCCGGIGIGGAGCCCCGAACICCAIGGG 444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1; Indels
                                                                            1039 CCCCTGGGGAAGAGCAGAGATATACGTACCAGGTGGAGCACC 1080
                                                                                                528 CCCTGGGGAAGAGCAGAGATATACGTGCCAGGTGGAGCACC 569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   24.8%; Score 356.4; DB 10; 99.5%; Pred. No. 1.9e-88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Mismatches
                                                                                                                                                                                                                                                                          BF883952.1 GI:12274078
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1, .384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sequence tags
                                                                                                                                                                                                                                                                                                                                          Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        92
                                                                                                                                                                                                                                                                                                                       human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              368;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
                                                                                                                                                                                                 BF883952/c
                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                            VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORIGIN
                                                                                                                                                                                                                        LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                         g
                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                ò
    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Homo sapiens"
/db_xref="taxon:9606"
/db_xref="taxon:9606"
/clone="INAGE=1844803"
/clone=lib="NHH_MGC_14"
/tissue_type="renal cell adenocarcinoma"
/tlab_host="Bhll08 (phage-resistant)"
/note="Organ: kidney; Vector: poTBF; Site_1: XhoI; Site_2: EcoRI; cDNA made by oligo-dr priming. Directionally cloned into EcoRI/XhoI sites using the following 5' adaptor: GGCACGAG(G). Size-selected >500bp for average insert size 1.8kb. Library constructed by Ling Hong in the laboratory of Gerald M. Rubin (University of Callifornia, Berkeley) using ZAP-cDNA synthesis kit (Stratagene) and Superscribt II RT (Life Technologies)."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1;
                                                                                                Craniata; Vertebrata; Euteleostomi;
Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                              Contact: Robert Strausberg, Ph.D.

Email: cgapbs-femail.nih.gov
Tissue Procurant: DCTD/DTP
CDNA Library Preparation: Ling Hong/Rubin Laboratory
CDNA Library Preparation: Ling Hong/Rubin Laboratory
CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can be
found through the I.M.A.G.E. Consortium/LLNL at: image.llnl.gov
Plate: LLCM240 row: j column: 04
High quality sequence stop: 566.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleoston Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 570)
NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC) Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                560 GGAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAAGAACAACGA 619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       620 GGGCTACTGGAAGTACGGGTATGATGGGCAGGACCACTTGAATTCTGCCCTGACACTA 679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 108 GGGCTACTGGAAGTACGGGTATGATGAGGGCAGGACCACCTTGAATTCTGCCCTGACACCACT 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   739 AGATICGGGCCAGGCAGAACAGGGCCIACCIGGAGAGGGACIGCCCIGCACAGCIGCAGG 798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        228 AGATTCGGGCCAGGCAGAGACAGGGCCTACCTGGAGAGGGACTGCCCTGCACACAGCTGCAGC 287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               799 AGTTGCTGGAGCTGGGGAGAGGTGTTTTGGACCAACAAGTGCCTCCTTTGGTGAAGGGTGA 858
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              859 CACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGGCCTTGAACTACTACTACCCCCC 918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    288 AGTTGCTGGAGCTGGGGAGAGGTGTTTTGGACCAACAAGTGCCTCCTTTGGTGAAGGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  35.1%; Score 505.2; DB 10; Length 570; 99.2%; Pred. No. 6.3e-130; Live 0; Mismatches 3; Indels 1;
  BE272926
BE272926.1 GI:9147279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity 3.2 les 518; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                           1. .570
                                                                                Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       140
                                                             human.
                                         EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
ORIGIN
                                                                                                                                                          AUTHORS
TITLE
JOURNAL
                                                                                ORGANISM
  ACCESSION
                                       KEYWORDS
SOURCE
                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                      COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
```

```
/organism="Homo sapiens"
/db_xref="taxon:966"
/db_xref="taxon:966"
/clone_lib="Er0209"
/dev_stage="Adult"
/note="Organ: lung_tumor; Vector: pucl8; Site_l: Smal;
Site_2: Smal; A mini-library was made by cloning products
Site_2: Smal; A mini-library was made by cloning products
derived from ORESTES PCR (U.S. Letters Patent application
No. 196,716 - Ludwig Institute for Cancer Research)
profiles into the pUC 18 vector. Reverse transcription of
tissue mRNA and cDNA amplification were performed under
low stringency conditions."
12 a 112 c 87 g 93 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 384)

Dias Neto,E., Garcia Correa,R., Verjovski-Almeida,S., Briones,M.R., Magal,M.A., da Sllva,W. Jr., Zago,M.A., Bordin,S., Costa,F.F., Goldman,G.H., Carvalho,A.F., Matsukuma,A., Baia,G.S., Simpson,D.H., Brunstein,A., deoliveira,P.S., Bucher,P., Jongeneel,C.V., O'Hare,M.J., Soares,F., Brentani,R.R., Reis,L.F., de Souza,S.J. and Simpson,A.J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Faz: +55-11-2704922
Fax: +55-11-2707001
Email: asimpson@ludwig.org.br
This sequence was derived from the FAPESP/LICR Human Cancer Genome
This sequence was derived from the FAPESP/LICR Human Cancer Genome
This sequence was derived from the following URL
(http://www.ludwig.org.br/scripts/gethtml2.pl?tl=PM4&t2=PM4-ET0209-
151200-003-f07&t3=2000-12-15&t4=1)
Seq primer: puc 18 forward
High quality sequence start: 17
High quality sequence start: 17
High quality sequence store: 384.
                                                                                                                                                                                                                                                                                                                   ығвыз952
РМ4-БТО209-151200-003-£07 БТ0209 Homo sapiens CDNA, mRNA sequence.
ВF883952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Contact: Simpson A.J.G.
Laboratory of Cancer Genetics
Ludwig Institute for Cancer Research
Rua Prof. Antonio Prudente 109, 4 andar, 01509-010, Sao Paulo-SP,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  325 TGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGTTTGAAGCTTTGGGCTACGTGGATG 384
ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 384;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Proc. Natl. Acad. Sci. U.S.A. 97 (7), 3491-3496 (2000)
20202663
```

Ŋ

Page

```
pig.
Sus scrofa
                                                                                                                                                                                                                                                                                                                                                                                   G-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                  260 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ø
           140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                        354
                                                                                                                                                                                                                                                                                                                               500
                                                                                                                                                                                                                                                                                                                                                                                   260
                                                                                                                                                                                                                                                                                                                                                                                                                                      596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
BF080089
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMMENT
                              g
                                                            Qγ
                                                                                    Dp
                                                                                                             ò
                                                                                                                                        qq
                                                                                                                                                                    οy
                                                                                                                                                                                         g
                                                                                                                                                                                                                     QY
                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                              δy
                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                           Ωp
                                                                                                                                                                                                                                                                                                                                                                                δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏλ
                                                                                                                                                                                                                                                                                                                                                                                                   big.
Sus scrofa
Sus scrofa
Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Butharia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
1 (bases 1 to 550)
Fahrenkrug, S.C., Freking, B.A., Rohrer, G.A., Smith, T.P.L., Casas, E., Stone, R.T., Heaton, M.P., Grosse, W.M., Bennett, G.A., Laegreid, W.W. and Keele, J.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Contact: Smith TPL
USDA, ARS, US Meat Animal Research Center
PO Box 166, Clay Center, NE 68933-0166, USA
Tal: 402 762 4396
Fax: 402 762 4396
Email: smith@email.marc.usda.gov
Single pass sequencing. Bases called and alt_trimmed with phred
and -minmatch 12 options.
                                                                                                                                                                                                                                                                                                                                         EST 30-JUL-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Design and use of two pooled tissue normalized cDNA libraries for EST discovery in swine Unpublished (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="Vector: pCMV SPORT6; Site_1: XbaI; Site_2: XhoI; Library made from pooled tissue from testis, ovary, endometrium, hypothalamus, pituitary, and placenta." 180 c 164 g 98 t
                                                                                           324 ACCAGCIG-TCGTGTTCTATGATCATGAGAGTCGCCGTGTGGAGCCCCGAACTCCATGGG 266
                                 504
                                                                                    564
                                                                                                                                        624
                                                                                                                                                                                  86
                                                                                                                                565 CCCACACCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAGGGCT
                            TTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGCTGAGTCAGAGTCTGAAAGGGTGGG
                                           145 CCGACACCTGCAGTCATCCTGGGCTGTGAAATGCAAGAAGAACAGTACCGAGGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 550;
                                                                                                                                                                                                                                                                                                                                   B1339179 550 bp mRNA linear 364041 MARC 2PIG Sus scrofa cDNA 5', mRNA sequence. B1339179.1 GI:15032462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 282.6; DB 10; Length
Pred. No. 9.3e-68;
0; Mismatches 114; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /organism="Sus scrofa"
/db_xref="taxon:9823"
/clone_lib="MARC 2PIG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FORWARD: AGGAAACAGCTATGACCAT
BACKWARD: GTTTTCCCAGTCAGGAGG
Plate: 100 row: C column: 24
Seq primer: ATTTAGGTGACACTATAG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /tissue_type="pooled"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
1. .550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19.6%;
74.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 19.6
Best Local Similarity 74.0
Matches 412; Conservative
                                                                                                                                                                                                                                        685 GGAGAGCAGC 694
                                                                                                                                                                                                                                                                 25 GGAGAGCAGC 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
ORIGIN
                             445
                                                     265
                                                                              505
                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                              ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                     BI339179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
 g
                                                                                                                                                         g
                            à
                                                 셤
                                                                             ò
                                                                                                      g
                                                                                                                                 ö
                                                                                                                                                                                    οy
                                                                                                                                                                                                            g
                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                g
```

3;

Gaps

31;

```
EST 18-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Manmalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.

1 (bases 1 to 523)
Fahrenkrug, S.C., Freking, B.A., Rohrer, G.A., Smith, T.P.L., Casas, E., Stone, R.T., Heaton, M.P., Grosse, W.M., Bennett, G.A., Laegreid, W.W.

Design and use of two pooled tissue normalized cDNA libraries for BTT discovery in swine
Unpublished (2000)
Contact: Smith TPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Single pass sequencing. Bases called and alt_trimmed with phred vo.880904.e. Vector identified by cross_match with the -minscore 18 PCR PRimers
GTGACTICTGGAGCCAICCCCGTTTCCCCGCCCCCAAAAGAAGCGGAGATTTAACGGGG 199
                                                                                          200 ACGIGCGGCCAGAGCIGGGGAAAIGGGCCCGCGGAGCCAGGCCGGCGCTICTCCTCCTGAI 259
                                                                                                                                                                                                                        380 GGATGACCAGCTGTTCGTGTTCTATGATGAGAGTCGCCGTGTGGAGCCCCGAACTCC 439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         440 AIGGGTITCCAGTAGAAITICAAGCCAGAIGIGGCIGCAGCIGAGICAGAGITGAAAGG 499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----GAGTCCCACACCTGCAGGTCATCCTGGGCTGTGA 595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AATGCAAGAAGACAACAGTACCGAGGGTACTGGAAGTACGGGTATGATGGCAGGACCA 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          320 CITCAIGGGIGCCICAGAGCAGGACCIIGGICIITCCIIGIIIGAAGCIIIGGGCIACGI
                                                                                                                      GTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGGAAAATCACAACCACAGCAA
                                                                                                                                                                                          GCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCGTTCACACTCTGCACTACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ькивойву 523 bp mRNA linear
230846 MARC 2PIG Sus scrofa cDNA 5', mRNA sequence.
BF080089
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            USDA, ARS, US Meat Animal Research Center
PO Box 166, Clay Center, NE 68933-0166, USA
TTEL: 402 762 4366
Fax: 402 762 4390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Email: smith@email.marc.usda.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FORWARD: AGGAAACAGCTATGACCAT
BACKWARD: GTTTTCCCAGTCACGACG
Plate: 48 row: E column: 9
Seq primer: ATTTAGGTGACACTATAG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BF080089.1 GI:10873919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              656 CCTTGAATTCTGCCCTG 672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        534 CCTGGAGTTCCACCCTG 550
```

€

```
Email: mEST@mail.nih.gov
Oligo-dT track not found, Not I site shown in beginning of sequence
Oligo-dT track not found, Not I site shown in beginning of sequence
is likely internal to the message. cDNA Library Preparation: M.B.
Soares Lab Clone distribution: Researchers may obtain BMAP cDNA
clones from RESEARCH GENETICS. It should be noted that Bento Soares
is generating a small number of additional specialized
considered under appropriate and limited collaborative arrangements
The following repetitive elements were found in this cDNA sequence:
1-31, >(CAG)n#Simple.repeat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACGGGTATGATGGGCAGGACCACCTTGAATTCTGCCCTGACACACTGGATTGGAGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGCTGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               574 IGCAGGICAICCIGGGCIGIGAAAIGCAAGAAGACAACAGIACCGAGGGCIACIGGAAGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGCCGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              418 GCCGTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGGAAAATCACAACCACAGCAAG------TGAGTCCCACACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      298 GITCACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGTTTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATGATGAGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 489;
           National Institute of Mental Health
6001 Executive Blvd. Room 7N-7190, MSC 9643, Bethesda,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity 73.1%; Pred. No. 7.5e-61;
Matches 356; Conservative 0; Mismatches 107;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              109 t
                                                                                                                                                                                                                                                                                               /organism-"Mus musculus"
                                                                                                                                                                                                                                                                                                             /strain="C57BL/6J"
/db_xref="taxon:10090"
                                                                                                                                                                                                                                                                   Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              144 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               133 c
                                                       Tel: 301 443 1706
Fax: 301 443 9890
                                         20892-9643, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 103
                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ĸ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           63
                                                                                                                                                                                                                                                                         FEATURES
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BE994943 1 GI:10678689
                                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus. I (bases 1 to 489)
Bonaldo, M.F., Lennon, G. and Soares, M.B.
Normalization and subtraction: two approaches to facilitate gene
                                                                                                       /note-"vector: pcMv sporme; site_1: XbaI; site_2: XhoI; Library made from pooled tissue from testis, ovary, endometrium, hypothalamus, pitultary, and placenta."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        180 GCCACACTCCCTGCTCTTCTTCATGGGCGCCTCGGAGGCCAGATCTCGGGCTGCCCCT 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  119 AGCCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCCAAA 178
                                                                                                                                                                                                                                                                                                                                  AGAAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCCGCGAGCCAG 238
                                                                                                                                                                                                                                                                                                                                                    62 AGCGGCCGAAAAGCACCTGGAAGCGCGGTCCGAGCC--GGGAAATGGGCCCACAAGCCG 119
                                                                                                                                                                                                                                                                                                                                                                                              GCCGCCCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCG 298
                                                                                                                                                                                                                                                                                                                                                                                                                120 GCCGGCGCTTCTGCTCCTGATCCTCCTGCGGACCGTGGCCACGCATGATCGAGCGCCGCG 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                        299 ITCACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTT 358
                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                       GTTTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATGATGAGAGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             419 CCGTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      479 GCTGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     360 GCTAAGCCAGAGCCTGAAAGGGTGGGATCACATGTTCACCGTGGACTTCTGGACCATCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 539 GGAAAATCACAACCACAGCAAG----------GAGTCCCACACCCT
                                                                                                                                                                                                                                              26;
                                                                                                                                                                                                              Length 523;
                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 275; DB 10;
Pred. No. 1.2e-65;
0; Mismatches 110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Genome Res. 6 (9), 791-806 (1996)
97044477
                            /organism="Sus scrofa"
/db_xref="taxon:9823"
/clone_lib="MARC_2PIG"
/tissue_type="pooled"
/lab_host="DH10B"
 Location/Qualifiers
1. .523
                                                                                                                                                                                                                Query Match
Best Local Similarity 74.0%;
Matches 387; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 house mouse.
                                                                                                                                                        ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        discovery
                                                                                                                                                        103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BE994943
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
MEDLINE
                                                                                                                                                      BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                        179
                                                                                                                                                                                                                                                                                                                                                                                                  239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      359
      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
```

ï

Gaps

182 477

417

357

```
BE995172.1 GI:10679153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Tel: 301 443 1706
Fax: 301 443 9890
                                                                                                                                                                                                                                                                                                                                                                                                          ||||||||| ||||
445 AACATCACTATGA 457
                                                                                                                                                                                                                                                                                                                                                                                      921 AACATCACCATGA 933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              discovery
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BE99517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                            681
                                                                                                                                                                                                                                                                                                            861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
BE995172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                     qq
                                                                                                                                                                                                                                                                                                                                               qq
                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                op
                                                                                                             g
                                                                                                                                                      ò
                                                                                                                                                                                                                                δy
                                                                                                                                                                                                                                                                                                            δŏ
                                                                            δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /orgatism="C57BL/G1"
/db_xref="taxon:10090"
/db_xref="taxon:10090"
/dbo="ul-wBG0-aib-q-10-0-ul"
/clone_lib="NIH_BMAP_MSC"
/dev_stage="27-32 days"
/dev_stage="27-32 days"
/dev_stage="27-32 days"
/deb_host="bH10B (Life Technologies)"
/deb_host="bH10B (Life Technologies)"
/nb_host="bH10B (Life Technologies)"
/nb_host="bH10B (Life Technologies)"
/note="vector: p7733-pec (Pharmacia) with a modified
polylinker; Site_1: Not I; Site_2: Eco RI; The
NHL BMAP_MSC library is a non-normalized library
constructed from mouse spinal cord. The tag is a string
of 5 nucleotides present between the Not I site and the
oligo-dr track. The library was constructed as described
by Bonaldo, Lennon and Soares, Genome Research 6: 791-806
/ 1996. Tissue provided by Ms. Annie Novakovich,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Oligo-driven control of the state shown in beginning of sequence is likely internal to the message. CDNA Library Preparation: M.B. Soares Lab Clone distribution: NIH BMAP CDNA clones will be made available by the means that is soon to be determined. When NIH record will be updated accordingly when that means is determined. The following repetitive elements were found in this cDNA sequence: Seq primer: M13 Forward
                                                                                                                               AI850020 457 bp mRNA linear EST 15-JUL-1999 UI-M-BGO-aib-g-10-0-UI.S1 NIH_BMAP_MSC Mus musculus cDNA clone UI-M-BGO-aib-g-10-0-UI 3', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ;
0
                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalla; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus. I (bases 1 to 457)
Bonaldo, M.F., Lennon, G. and Soares, M.B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  561 GAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGAACAACAGTACCGAG 620
                                                                                                                                                                                                                                                                                                                                                                                                                                         Contact: Chin, H
National Institute of Mental Health
(6001 Executive Blvd. Room 7N-7190, MSC 9643, Bethesda, MD
20892-9643, USA
Tel: 301 443 1706
Fax: 301 443 9890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ó;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 9; Length 457;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 251.4; DB 9;
Pred. No. 4.4e-59;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1. .457
/organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                      Genome Res. 6 (9), 791-806 (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TAG_LIB-NIH_BMAP_MSC
TAG_TISSUE-spinal-cord
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         144 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Fax: 301 443 9890
Email: mEST@mail.nih.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TAG_SEQ-TCGAA
                                                                                                                                                                                                           AI850020.1 GI:5493926
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17.5%;
79.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                     Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
694 CAGAACC 700
                                                                                                                                                                                                                                                                                                                                                                                      discovery
                                     483 CCGAGCC 489
                                                                                                                                                                                           AI850020
                                                                                                                                                                                                                                                                                                                                                                                                                           97044477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100
                                                                                                                                                                                                                                                  house
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        297;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Loca
Matches
                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                          REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
MEDLINE
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  82
                                                                                            RESULT A
                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                         VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORIGIN
                                                                                                                                                                                                                                                  SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Op
                                       a
    ŏ
```

```
Fig. 2014,99 3030.

Coligo-dT track not found, Not I site shown in beginning of sequence is likely internal to the message. CDNA Library Preparation: M.B.

Soares Lab Clone distribution: Researchers may obtain BMAP CDNA clones from RESEARCH GENETICS. It should be noted that Bento Soares is generating a small number of additional specialized non-redundant arrays of BMAP CDNAs whose availability will be considered under appropriate and limited collaborative arrangements The following repetitive elements were found in this CDNA sequence: 1-31, > (CAG)n#Simple_repeat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BE995172 455 bp mRNA linear EST 05-OCT-2000 UI-M-CGOp-bil-h-10-0-UI.sl NIH_BMAP_Ret4_S2 Mus musculus cDNA clone UI-M-CGOp-bil-h-10-0-UI 3', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mus musculus
Eukaryota, Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Eukaryota, Metazoa; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
1 (bases 1 to 455)
Bonaldo, M.F., Lennon, G. and Soares, M.B.
Normalization and subtraction: two approaches to facilitate gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1. .455
/organism="Mus musculus"
/strain="C57BL/6J"
/db_xref="taxon:10090"
/clone="UI-W-C50P-Lh-10-0-UI"
/clone_ID="NIH_BMAP_Ret4_52"
/lab_host="DH10B (Life Technologies)"
/note="Vector: pf773D-Pac (Pharmacia) with a modified polyllinker; Site_I: Not I; Site_2: EGO RI; The NIH_BMAP_Ret4_S2 library is a subtracted library,
                                     205 AACTGGAGCGGAGCCAGGGGCCTGGGCCACCAAGGTGGAATGGGACGAGCAAAG 264
                                                                                                                                                                                                                                                                                                                                                                                                                    801 TIGCIGGAGCIGGGAGAGGIGITITIGGACCAACAAGIGCCICCITIGGIGAAGGIGACA 860
                                                                                                                                                                                                                                                                                                                                                                                                                                                     385 CGCCACTGGGCCTCTACGGGGACCTCTCTAAGGTGTCAGGCTCTGGACTTCTTCCCCCCAG 444
GCCTACTGGAAGTACGGGTATGATGGCCAGGACCACCTTGAATTCTGCCCTGACACACTG 680
                                                                                                                                                                                                                                                                             741 ATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACTGCCCTGCACAGCTGCAGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGGCCTTGAACTACTACCCCCAG 920
                                                                                                                                                                                                                                                                                                                      GATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGCTGGAGTGGGAAAGGCAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Contact: Chin, H
National Institute of Mental Health
6001 Executive Blvd. Room 7N-7190, MSC 9643, Bethesda,
20892-9643, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Genome Res. 6 (9), 791-806 (1996)
97044477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
```

œ

```
/tissue_type="lymph node
                                                              /organism="Mus musculus"
                                                                                                                                                                            /dev_stage="4 weeks"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCAGCAGAACCCAGGGCCTGGCCC 713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCAGCCGAGCCAGGCCTGGGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                16.0%;
nilarity 74.1%;
Conservative 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    W21141
W21141.1 GI:1298018
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                      101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  329;
                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11
                                                                                                                                                                                                                                                                                                                                                                        COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        069
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VERSION
KEYWORDS
                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                                                                                                                      BASE CO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        W21141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Op
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŏλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QΫ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (bases 1 to 464)
Marra, M., Hillier, L., Allen, M., Bowles, M., Dietrich, N., Dubuque, T.,
Gelsel, S., Kucaba, T., Lacy, M., Le, M., Martin, J., Morris, M.,
Schellenberg, K., Steptoe, M., Tan, F., Underwood, K., Moore, B.,
Theising, B., Wylie, T., Lennon, G., Soares, B., Wilson, R. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EST 06-FEB-1997
                                                                                                                                                                               ö
ultimately derived from mouse retina tissue libraries at various stages of development. For a detailed description of the library from which this clone was derived, please visit our web site at brainest.eng.ulowa.edu.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AA217236 464 bp mRNA linear EST 06-FEB-15 mu89b05.rl Soares mouse lymph node NbMLN Mus musculus cDNA clone IMAGE:652689 5' similar to TR:G940354 G940354 CLASS I HISTOCOMPATIBILITY ANTIGEN-LIKE PROTEIN. ;, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Email: mouseest@watson.wustl.edu
This clone is available royalty-free through LLNL ; contact the
IMAGE Consortium (info@image.llnl.gov) for further information.
MGI:398537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  681 GATTGGAGGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGCTGGAGTGGGAAAGGCACAAG 740
                                                                                                                                                                                                                                                                                                                                                                          265
                                                                                                                                                                                                                                                                                                                                                                                                        800
                                                                                                                                                                                                                                                                                                                                                                                                                                       325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     860
                                                                                                                                                                                                                                 86 GAGTCCCACATCCTGCAGGTGGTCCTAGGCTGTGAGGTGCATGAAGACAACAGTACCAGC 145
                                                                                                                                                                                                                                                                                                   561 GAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAG 620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      621 GGCTACTGGAAGGAGGGTATGGCGGCAGGACCACCTTGAATTCTGCCCTGACACTG
                                                                                                                                                                                                                                                                                                                                                              741 ATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACTGCCCTGCACAGCTGCAGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Unpublished (1996)
Contact: Marra M/Mouse EST Project
WashIn-HMI Mouse EST Project
WashIngton University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1810
Fax: 314 286 1810
                                                                                                                                                                                 ;
0
                                                                                                                                                   DB 10; Length 455;
                                                                                                                                                                               16;
                                                                                                                                                 Score 248.4; DB
Pred. No. 3e-58;
                                                                                    83 t
                                                                                                                                                                                 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Waterston, R.
The WashU-HHMI Mouse EST Project
                                                                                       144 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AA217236
AA217236.1 GI:1826237
                                                                                                                                                 17.2%;
al Similarity 79.5%;
294; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AACATCACCA 930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AACATCACTA 455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   house mouse.
                                                                                       66
                                                                                                                                                                    Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 10
AA217236/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      446
                                                                                      BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    rocus
```

Dp

ò

셤

셤 à Db

ò

a ŏ g ò

ò

```
W21141 268 bp mRNA linear EST 20-AUG-1996 zb51g06.rl Soares_fetal_lung_NbHL19W Homo sapiens cDNA clone IMAGE:307162 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                ä
                                                                                                                                                                                                                               /note="Organ: lymph node; Vector: pT7T3D-Pac (Pharmacia) with a modified polylinker; Site_1: Not I; Site_2: Eco RI; 1st strand cDNA was primed with a Not I - oligo(dT) primer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAGTACGGGTATGATGGGCAGGACCACCTTGAATTCTGCCCTGACACACTGGATTGGAGA 689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               273 CTGCATCTGAGTCAGAGCCTGAAAGGTGGGACTACATGTTCATAGTAGACTTCTGGACC 214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    213 ATCATGGGCAACTATAACCACAGTAAGGTCACGAAGTTGGGAGTGGTGTCCGAGTCCCAC 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CIGCGIICACACICICIGCACIACCICIICAIGGGIGCCICAGAGCAGGACCIIGGICII 353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   534 ATTATGGAAAATCACAACCACAGCAAG------------GAGTCCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       570 ACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAGGGCTACTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  354 ICCTIGITTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGTCGCCGTGTGGAGCCCCGGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTGCAGCTGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 464;
Possible reversed clone: similarity on wrong strand Seq primer: -28ml3 rev2 ET from Amersham. Location/Qualifiers
                                                                                   /strain="C57BL/6J"
/db_xref="taxon:10090"
/clone='InAGE:652689"
/sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                90; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 230; DB 9;
Pred. No. 4.2e-53;
0; Mismatches 90;
```

σ

```
214520 MARC 2BOV Bos taurus cDNA 5', mRNA sequence
                                BE809138.1 GI:10240250
                                                                                                                              Bovidae; Bovinae; Bos.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14.9%;
85.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches 238; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                   PCR PRimers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                   Bos taurus
                                                                                                                                                                                                                             Keele, J.W.
                  BE809138
                                                                  COW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
   DEFINITION
                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           379
                 ACCESSION
                                                                                                                                             REFERENCE
                                                                                                                                                            AUTHORS
                              VERSION
KEYWORDS
                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                       COMMENT
                                                                SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           qq
          Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 268)

1 (bases 1 to 268)

1 (bases)

Chissoe, S., Dietrich, N., DuBuque, T., Favello, A., Gish, W., Hawkins, M., Hultman, M., Kucaba, T., Lea, T., Le, N., Le, N., Le, N., Mardis, E., Moore, B., Morris, M., Parsons, J., Prange, C., Rifkin, L., Rohlfing, T., Schellenberg, K., Soares, M.B., Tan, F., Thierry-Meg, J., Trevaskis, E., Underwood, K., Wohldmann, P., Waterston, R., Wilson, R. and Marra, M. Generation and analysis of 280,000 human expressed sequence tags
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1;
                                                                                                                                                                                                                                                                                                                                                                                                             EST 25-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      double-stranded CDNA was size selected, lighted to ECC RI adapters (Pharmacia), digested with Not I and cloned into the Not I and ECC RI sites of a modified py773 vector (Pharmacia). Library went through one round of normalization to a COt = 5. Library constructed by Bento Soares and M.Fatima Bonaldo. This library was constructed from the same fetus as the fetal heart library, Soares fetal heart NDHH19W."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This clone is available royalty-free through LLNL; contact the IMAGE Consortium (info@image.llnl.gov) for further information. Insert Length; 1642 Std Error: 0.00 Seq primer: mob.REGA+ET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1201 TAATATTAAGGAAGAAGCAGGGTTCAAGAGGAGCCATGGGGGCACTACGTCTTAGCTGAAC 1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1261 GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG 1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1321 AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGGAGTTGAACCTAAACATAGAAAT 1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 TAATATTAAGGAAGGAGGGTTCAAGAGGAGCCATGGGG-ACTACGTCTTAGCTGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ï
                                                                                                                                                                                                                                           63108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 10; Length 268;
                                                                                                                                                                                                    Contact: Wilson RK
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO
Tel: 314 286 1800
Fax: 314 286 1810
Email: est@watson.wustl.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pred. No. 3.3e-52;
0; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        69 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 226.4;
                                                                                                                                                                                                                                                                                                                                                                    High quality sequence stop: 173.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ďq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           б
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     15.7%;
99.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches 238; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                 1, .268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                        97044478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BE809138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             180
                                                                                                                                                       TITLE
JOURNAL
MEDLINE
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 1
BE809138
LOCUS
                                               REFERENCE
                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
```

```
Email: smith@email.marc.usda.gov
single pass sequencing. Bases called and alt_trimmed with phred
v0.980904.e. vector identified by cross_match with the -minscore 18
and -minmatch 12 options.
                                                                                 [ (bases 1 to 546)]
Smith, T.P.L., Grosse, W.M., Freking, B.A., Roberts, A.J., Stone, R.T., Gasas, E., Wary, J.E., White, J., Cho, J., Fahrenkrug, S.C., Bennett, G.L., Heaton, M.P., Laegreid, W.W., Rohrer, G.A., Chitko-McKown, C.G., Pertea, G., Holt, I., Karamycheva, S., Liang, F., Quackenbush, J. and
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
                                                                                                                                                                                                                                          Sequence evaluation of four pooled-tissue normalized bovine cDNA libraries and construction of a gene index for cattle Genome Res. 11 (4), 626-630 (2001) 21180013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="Vector: pCMV SPORT6; Site_1: XbaI; Site_2: XhoI; Library made from pooled tissue from testis, thymus, semitendonosus muscle, longissimus muscle, pancreas, advensal and and and muscle, in un greaterium "
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        561 GAGTCCCACACCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAG 620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           199 GGGTTCTGGAAGTACGGGTACGATGGGCAGGACCATCTTGAATTCCGGCCTGAGACACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGCTACTGGAAGTACGGGTATGATGGCCAGGACCACCTTGAATTCTGCCCTGACACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGCTGGAGTGGGAAAGGCACAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   741 ATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGGGGACTGCCCTGCACAGCTGCAGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 546;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                            Contact: Smith TPL USDA, ARS, US Meat Animal Research Center PO Box 166, Clay Center, NE 68933-0166, USA Tal: 402 762 4366 Fax: 402 762 4390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  39;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 214.6; DB 1
Pred. No. 9.2e-49;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             100 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TIGCTGGAGCTGGGGAGAGGTGTTTTGGACCAACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               adrenal, and endometrium.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Bos taurus"
/db_xref="taxon:9913"
/clone_lib="MARC 2BOV"
/tissue_type="pooled"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FORWARD: AGGAACAGCTATGACCAT
BACKWARD: GTTTTCCAGTACGAGGACG
Plate: 71 row: A column: 5
Seq primer: ATTTAGGTGACACTATAG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
```

ö

```
BI452668 831 bp mRNA linear EST 21-AUG-2001
603169877F1 NCI_CGAP_Mam5 Mus musculus cDNA clone IMAGE:5249395 5',
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="Organ: mammary; Vector: pCMV-SPORT6; Site_1: Sall; Site_2: NotI; Cloned unidirectionally. Primer: Oligo dT. Library constructed by Life Technologies. Investigators providing samples: Lothar Hennighausen/Robin Humphreys,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Unpublished (1999)
Contact: Robert Strausberg, Ph.D.
Tissue Procurement: Lothar Hennighausen Ph.D., Robin Humphreys
CDNA Library Preparation: Life Technologies, Inc.
CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can be
found through the I.M.A.G.E. Consortium/LLNL at:
http://mage.lln.gov
Plate: LLAM11629 row: j column: 20
High quality sequence stop: 818.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
1 (bases 1 to 831)
NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC)
                                                                                                                                                                                                                                                                                                                                                                                                                         354 ICCITGITIGAAGCITIGGGCTACGIGGAIGACCAGCIGITCGIGITCTAIGAIGAIGAG 413
                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCAGGCCGGCGTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGGCGCTTG 293
                                                                                                                                                                                                                                                                                                                        174 CCAAAAGAAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGA 233
                                                                   69 AGIGAAGACCGGIGGACCCAGC-----TGAGGACAIGAGCCIAICAGCIGGGCICCCI 121
                                                                                                                                                                               294 CIGCGIICACACICICIGCACIACCICITCAIGGGIGCCICAGAGCAGGACCIIGGICII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 474 CIGCAGCIGAGICAGAGTCIGAAAGGGIGGGAICACAIGITCACIGITGACITCIGGACI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   414 AGTCGCCGTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /tissue_type="tumor, gross tissue"
/dev_stage="7 months"
/lab_host="DH108"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Mus musculus"
/strain="C57/86"
/db_xref="taxon:10090"
/clone="YAAGE:5249395"
/clone="IAAGE:C249395"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       534 ATTATGGAAAATCACAACCACAGCAAGG 561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BI452668.1 GI:15243324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          220 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1. .83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mRNA sequence.
BI452668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                            234
                                                                                                                                                                                                                           122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BI452668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                         Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                     g
                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                  Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Email: genome-res@gsc.riken.go.jp,
URL:http://genome.gsc.riken.go.jp,
URL:http://genome.gsc.riken.go.jp/
URL:http://genome.gsc.riken.go.jp/
URL:http://genome.gsc.riken.go.jp/
URL:http://genome.gsc.riken.go.jp/
URL:http://genome.gsc.riken.go.jp/
URL:http://genome.gsc.riken.go.jp/
URL:http://genome.gsc.riken.go.jp/
W. Konno,H., Okazaki,Y., Muramatsu,M. and Haysshizaki,Y.
Watahiki,M., Yoneda,Y., Ishikawa,T., Ozawa,K., Tanaka,T., Matsuura,S., Kawai,J., Okazaki,Y., Muramatsu,M., Inoue,Y., Kira,A. and Haysshizaki,Y.
RIKEN integrated sequence analysis (RISA) system--384-format sequencing pipeline with 384 multicapillary sequencer. Genome Res. 10 (11), 1757-1771 (2000)
Konno,H., Fukuhishi,Y., Shibata,K., Itch,M., Carninci,P., Sugahara,Y., Multicaki,M., Carninci,P., Sugahara,Y., and Haysshizaki,Y., Shibata,K., Itch,M., Carninci,P., Sugahara,Y., Multicaki,M., Carninci,P., Sugahara,Y., and Haysshizaki,Y., Shibata,K., Itch,M., Carninci,P., Sugahara,Y., Multicaki,M., Multicaki,M., Carninci,P., Sugahara,Y., Multicaki,M., Carninci,P., Sugahara,Y., Multicaki,M., Carninci,P., Sugahara,Y., Multicaki,M., Carninci,P., Sugahara,Y., Multicaki,M., Carninci,P., Sugahara,M., Rukuhishi,M., Rukuhishi,M., Carninci,P., Sugahara,M., Multicaki,M., Carninci,P., Sugahara,M., Multicaki,M., Carninci,P., Sugahara,M., Rukuhishi,M., Rukuhishi,M., Carninci,M., Carninci,M., Shibata,M., Carninci,M., Carninci,M., Shibata,M., Carninci,M., Shibata,M., Carninci,M., Shibata,M., Carninci,M., Shibata,M., Carninci,M., Shibata,M., Shibata,M., Carninci,M., Shibata,M., Shibata,M., Carninci,M., Shibata,M., S
                                                                                                                                                                                                                                                                                                                                                              Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalla; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus. 1 (bases 1 to 481).

Adimura,T., Arakawa,T., Carnincl,P., Furuno,M., Hanagaki,T., Hayatsu,N., Hiramoto,K., Hiraoka,T., Hirozane,T., Imotani,K., Ishii,Y., Y. Ito,M., Kawai,J., Koljam,Y., Kondo,H., Kouda,M., Matsuyama,T., Y., Ito,M., Kawai,J., Koljam,Y., Kondo,H., Sasaki,D., Satio,R., Salto,R., Sakai,C., Sakai,K., Sakai,K., Sakai,K., Sakai,K., Shinagawa,A., Shiraki,T., Sogabe,Y., Suzuki,H., Tagawa,A., Takahashi,F., Takaku-Akahira,S., Tanaka,T., Tomaru,A., Toway,T., Watahiki,A., Yasunishi,A., Muramatsu,M. and Hayashizaki,Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1;
                                                       481 bp mRNA linear EST 26-NOV-2001
BB851691 RIKEN full-length enriched, B16 F10Y cells Mus musculus
CDNA clone G370002P09 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Contact: Yoshihide Hayashizaki
Contact: Yoshihide Hayashizaki
Laboratory for Genome Exploration Research Group, RIKEN Genomic
Sciences Center(GSC), Vokohama Institute
The Institute of Physical and Chemical Research (RIKEN)
The Institute of Physical Research (RIKEN)
The Institute of Physical and Chemical Research (RIKEN)
The Institute of Physical Research (RIKEN)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Computer-based methods for the mouse full-length cDNA encyclopedia: real-time sequence clustering for construction of a nonredundant cDNA library. Genome Res. 11 (2), 281-289 (2001) Please visit our web site (http://genome.gsc.riken.go.jp) for further details.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 114 TCCTGAGCCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCC 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14.6%; Score 209.6; DB 9; Length 481; 68.5%; Pred. No. 2.1e-47;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Mismatches 134; Indels

    .481
    /organism="Mus musculus"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /strain="C57BL/6J"
                                                                                                                                                                                                                                      BB851691.1 GI:17093145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Unpublished (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    e mouse tissues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                 house mouse.
Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      307;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Si
Matches 307;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
                                                                                                                                      DEFINITION
                                                                                                                                                                                                         ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                   BB851691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                     SOURCE
```

us-09-497-957-12.rst

g δλ Q ŏ g g ò 셤 ò q ŏ g

ŏ

```
Email: genome-res@gsc.riken.go.jp,
URL:http://genome.gsc.riken.go.jp,
Carninol.p., Shibata,Y., Hayatsu,N., Sugahara,Y., Shibata,K., Itoh
Carninol.p., Shibata,Y., Hayatsu,N., and Hayashizaki,Y.
M., Konno,H., Okazaki,Y., Muramatsu,M. and Hayashizaki,Y.
Normalization and subtraction of cap-trapper-selected cDNAs to
prepare full-length cDNA libraries for rapid discovery of new
genes. Genome Res. . 10 (10), 1617-1630 (2000)
wagi,K., Fujiwake,S., Inoue,K., Togawa,Y., Izawa,M., Ohara,E.,
wagi,K., Fujiwake,S., Inoue,K., Togawa,Y., Izawa,M., Ohara,E.,
wagi,K., Fujiwake,S., Inoue,K., Togawa,Y., Izawa,M., Ohara,E.,
sacuration of the moue, Y., Kira,A. and
Hayashizaki,Y.
RIKBN integrated sequence analysis (RISA) system--384-format
sequencing pipeline with 384 multicapillary sequencer. Genome Res. .
10 (11), 177-1771 (2000)
Konno,H., Fukunishi,Y., Shibata,K., Itoh,M., Carninci,P., Sugahara
y. and Hayashizaki,Y.
Computer-based methods for the mouse full-length cDNA
encyclopedia: real-time sequence clustering for construction of a
nonredundant cDNA library. Genome Res. . 11 (2), 281-289 (2001)
Please visit our web site (http://genome.gsc.riken.go.jp) for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /clone_lib="RIKEN full-length enriched, B16 F10Y cells"
/cell_type="B16 F10Y cells"
139 c 147 g 118 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      116 TCCCTGTGCGGCCGCTGCTGCTGCTGCTGCTGCGCCCGGGGCCCCGCAGGCAC 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  109 GCATCTCCTGAGCCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCC 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              169 GCCCCCCAAAAGAAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCC 228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      63 ATCCTAGTGAAGACCGGTGGACCCAGC----TGAGGACATGAGCCTATCAGCTGGGC 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          229 CGCGAGCCAGGCCGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGC 288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      289 GCTTGCTGCGTTCACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTG 348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   349 GTCTTTCCTTGTTTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTTGATG 408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATGAGAGTCGCCGTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGA 468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGTGG-CTGCAGCTGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTC 527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 502;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0; Mismatches 138;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 197.2; DB 9 Pred. No. 6.4e-44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGGACTATTATGGAAAATCACAACCACAGGAGG 561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /db_xref="taxon:10090"
/clone="G370049A15"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /strain="C57BL/6J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13.7%;
67.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  e mouse tissues.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  308;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local S
Matches 308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sclurognathi; Muridae; Murinae; Mus. 1 (bases 1 to 502)

**Akimura,T., Arakawa,T., Carninci,P., Furuno,M., Hanagaki,T., Hayatsu,N., Hiramoto,K., Hiraoka,T., Hirozane,T., Imotani,K., Ishii, Y., Tto,M., Kawal,J., Kojina,Y., Konno,H., Matsuyama,T., Nakamura,M., Nishi,K., Nomura,K., Numasaki,R., Okazaki,Y., Okido,T., Salto,R., Sakal,C., Sakal,K., Sakazume,N., Saski,D., Sato,K., Shibata,K., Shinagawa,A., Shiraki,T., Sogabe,Y., Suzuki,H., Tagawa,A., Takahashi,F., Takaku-Akhaira,S., Tanaka,T., Tomaru,H., Tagawa,A., Takahashi,F., Muramatsu,M. and Hayashizaki,Y.
**RIKEN Encyclopedia of Mouse Full-length cDNAs (Akimura,T., et al.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BB858165 RIKEN full-length enriched, B16 F10Y cells Mus musculus cDNA clone G370049A15 5', mRNA sequence.
                                                                               4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Laboratory for Genome Exploration Research Group, RIKEN Genomic Sciences Center(GSC), Yokohama Institute The Institute of Physical and Chemical Research (RIKEN) 1-7-22 Suehiro-cho, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan Tel: 81-45-503-9222
                                                                                                                                                                                                                                                                                                             1055 GAGATATACGTACCAGGTGGAGCACCCAGGCCTGGATCAGCCCCTCATTGTGATCTGGGA 1114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CATCTTGTTCATTGGAATTTTGTTCATAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGC 1234
                                                                                                                                                                                                                 995 CAATGGGGATGGGACCTACCAGGGCTGGATAACCTTGGCTGTACCCCCTGGGGAAGAGCA 1054
                                                                                                                                                                                                                                                                                                                                                                                                            GCCCTCACCGTCTGGCACCCTAGTCATTGGAGTCATCAGTGGAATTGCTGTTTTTGTCGT 1174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CATGGGGCACTACGTCTTAGCTGAACGTGAGTGACACGCAGCCTGCAGACTCACTGTGGG 1294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGAGAGTTGAACCTAA-ACATAGAAATTGCCTGACGAACTCCTTGATTTTAGCCTTCTT 1413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              935 GTGGCTGAAGGATAAGCAGCCAATGGATGCCAAGGAGTTCGAACCTAAAAGACGTATTGCC 994
                                                                                                                                                                      61
                                                                                                                                                122 AAGGTTCACCTGTCAAGTGGAGCACGCCTGGACCACGCCTCTCACTGCCTCTTGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                  1295 AAGGAGACAAAACTAGAGACTCAAAGAGGGAGTGCATTTATGAGCTCTTCATGTTTCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAGAAAACTCAGCCAAAGACTTGGAGGGGGCACACTTGCTCCA------CTGTAGG
                                                                          17;
                                Length 831;
                                                                             Indels
                             DB 10;
                                                                        Mismatches 143;
                             Score 202.2; DB 1
Pred. No. 3.3e-45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Contact: Yoshihide Hayashizaki
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1414 GTTCATTTCCTCAAAAGATTTCCC 1438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BB858165.1 GI:17099619
                        14.0%;
68.3%;
                                                                        Matches 345; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mus musculus
                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Unpublished
                             Query Match
                                                    Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                         1115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 1
BB858165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
```

g

ò

ñ

.. 6

Search completed: June 19, 2002, 07:21:51 Job time: 2597 sec

```
AAC68432;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
AAC68432
June 19, 2002, 08:49:52 ; Search time 352.95 Seconds (without alignments) 7004.836 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Human hereditary h
Human hereditary h
Human hereditary h
Hereditary haemoch
                                                                                                                                                                                                            US-09-497-957-12
1440
1 GGGGACACTGGATCACCTAG......TCCTCAAAAAGATTTCCCCA 1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        **Sinisity godata/geneseq/geneseqn-embl/NA1980.DAT:*

Sinisity godata/geneseq/geneseqn-embl/NA1981.DAT:*

Sinisity godata/geneseq/geneseqn-embl/NA1981.DAT:*

Sinisity godata/geneseq/geneseqn-embl/NA1981.DAT:*

Sinisity godata/geneseq/geneseqn-embl/NA1981.DAT:*

Sinisity godata/geneseq/geneseqn-embl/NA1985.DAT:*

Sinisity godata/geneseq/geneseqn-embl/NA1985.DAT:*

Sinisity godata/geneseq/geneseqn-embl/NA1987.DAT:*

Sinisity godata/geneseq/geneseqn-embl/NA1987.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /SIDS1/gcgdata/geneseq/geneseqn-emb1/NA2002.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Description
        GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                 hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                             1736436 seqs, 858457221 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                        - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAC68432
AAC68430
AAC68431
                                                                                                                                                                                                                                                                                                IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N_Geneseq_032802:*
                                                                                                                                                                                                                                                                                                                                                                                                                                             seq length: 0
seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        222
222
223
221
223
223
223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query
Match Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100.0
999.9
999.8
999.8
84.8
38.7
                                                                                                                                                                                                                                                                                                                                                                                                    Potal number of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1438.4
1438.4
1436.8
1436.8
1436.8
1215.8
557.6
                                                                                                                                                                                                                                  Perfect score:
                                                                                                                                                                                                                                                                                                Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score
                                                                                                                                                                                                                                                                                                                                                                                                                                             Minimum DB
Maximum DB
                                                                                          OM nucleic
                                                                                                                                                                                                                                                            Seguence:
                                                                                                                                                                                                                                                                                                                                                             Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Database
                                                                                                                                 Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     26459786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               М
В
```

polynucleoti hereditary h

Human Human

Human hereditary h Haemochromatosis g CDNA sequence enco

AAT96691 AAC68429 AAV23525 AAA96769 AAI63897 AAC68427

```
Human immune syste cDNA encoding chic Human polynuclecti Human EST-derived
Human hereditary hereditary hereditary haemoch Human hereditary hemon bereditary hemonic DNA of a hereditary haemoch Human hereditary hemoch
                                                                                                                                                                                                                                           Human CDNA encodin
HLA-C exon Cb-2.
DNA encoding novel
DNA encoding novel
PHLA-B7/Deta-2 mic
Human cancer cell
                                                               Human hereditary h
Human musculoskele
                                                                                                                                                                                                                                      Nucleotide sequenc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Wolff RK;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Tsuchihashi Z,
                                                                                                                                                                                                                                                                                                                                                                                               Human hereditary hemochromatosis 24d1/2 mutation cDNA.
                                                                                                                                                                                                                                                                                                                                                                                                              H; hereditary hemochromatosis; chelation agent; -cell differentiation factor; iron overload; ss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ruddy D,
                                                                                                                                                                                                                                                                                                          ALIGNMENTS
                                                             AAC68440
AAL36747
AABL34143
AAA48668
AAA48671
AAA48671
AAA48672
AAA4869
AAA48669
AAA48666
AAC68428
AAT96690
AAC68425
                      AAC68426
AAA96794
AAV57903
AAC68441
AAX16055
                                                                                                                                                                                                                                                   AAQ12117
AAS90913
AAS90740
                                                                                                                                                                                                                                                                          AAQ75973
AAH45555
                                                                                                                                                                                                                                             AAS07697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gnirke A,
                                                                                                                                                                                                                                                                                                                                                AAC68432 standard; DNA; 1440 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    96US-0630912.
96US-0632673.
96US-0652265.
 97US-0834497
                                                                                                                                                                                                                                                                                                                                                                               (first entry)
              10825
10825
12146
237326
                                                              517
5749
8622
8622
11112
11195
11197
11197
11173
11173
                                                                                                                                                                                                   1230
1554
1101
1567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (BIRA ) BIO-RAD LAB INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Thomas WJ, Drayna DT,
Feder JN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WPI; 2001-006341/01
04-APR-1996;
16-APR-1996;
23-MAY-1996;
                                                                                                                                                                                                                                                                                                                                                                               21-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     04-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      US6140305-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      31-OCT-2000
      319.4
319.4
319.4
319.4
319.4
319.4
319.4
128.2
278.4
278.4
278.4
178.2
173.6
173.6
173.6
166.8
                                                                                                                                                            160.4
160.4
158.8
1158.8
1157.2
1155.6
1143.2
1142
1142
1141.8
                                                                                                                                                                                                                                                         139.4
139.4
138.4
137.8
```

```
Thomas WJ,
Feder JN;
                                                                                                                                                                                                                                                                                                                                                                                                                                       AAC68430
                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAC68430;
                                                                                                                                                                                                                                                                                                                                                                                                                      ~
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo
                                                                                                                                                                                               1081
                                                                                                                                                                                                                  1141
                                                                                                                                                                                                                                    1141
                                                                                                                                                                                                                                                       1201
                                                                                                                                                                                                                                                                          1201
                                                                                                                                                                                                                                                                                             1261
                                                                                                                                                                                                                                                                                                               1261
                                                                                                                                                                                                                                                                                                                                                     1321
                                                                901
                                                                                  901
                                                                                                     961
                                                                                                                        961
                                                                                                                                         1021
                                                                                                                                                            1021
                                                                                                                                                                              1081
        781
                           841
                                                                                                                                                                                                                                                                                                                                                                                                                              AAC68430
                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                         qq
                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                 g
                                                                                                     Qγ
                                                                                                                        음
                                                                                                                                         οý
                                                                                                                                                          g
                                                                                                                                                                              ò
                                                                                                                                                                                            g
                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                       δy
                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                  δ
                           δ
                                                                 δ
                                                                                                                                                                     ö
                                                       The present invention relates to hereditary hemochromatosis gene products. These proteins may be used to treat a patient diagnosed as having human hemochromatosis disease. It is also useful as a metal chelation agent or as a T-cell differentiation factor, and for alloviating iron overload. They may also be used in protein replacement therapy for individuals having a defective human hemochromatosis gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          840
                                                                                                                                                                                                                                                                 180
                                                                                                                                                                                                                                                                                                                                            300
                                                                                                                                                                                                                                                                                                                                                              300
                                                                                                                                                                                                                                                                                                                                                                                360
                                                                                                                                                                                                                                                                                                                                                                                                   360
                                                                                                                                                                                                                                                                                                                                                                                                                      420
                                                                                                                                                                                                                                                                                                                                                                                                                                        420
                                                                                                                                                                                                                                                                                                                                                                                                                                                           480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  720
                                                                                                                                                                                                                                      61 actaaagttctgaaagacctgttgcttttcaccaggaagttttactgggcatctcctgag 120
                                                                                                                                                                                                                            61 ACTAAAGTICIGAAAGACCIGIIGCIITICACCAGGAAGIITIACIGGGCAICICCIGAG 120
                                                                                                                                                                       Gaps
                                                                                                                                                                                                        9
or polypeptides, useful patient, and as a metal
                                                                                                                                                                                                                                                                                                                                           121 CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGGCCCCCCAAAAG
                                                                                                                                                                                                                                                                                                                 TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AATTCTGCCCTGACACACTGGATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACCAACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    aattetgeeetgaeacactggattggagagcagcagaacccagggeetggeecaage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGACAGGGCCTACCTGGAGAGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           781 GCCCTGCACAGCTGCAGCAGTTGCTGGAGCTGGGGAGAGGTGTTTTGGACCAACAAGTGC
                                                                                                                                                                                                                                                                             AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCCAGGC
                                                                                                                                                                                                                                                                                                                                                                                  CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                                                                                                                                     cacactctctgcactacctcttcatgggtgcctcagaggcaggaccttggtctttccttgt
                                                                                                                                                                                                                                                                                                                                                                                                                       TTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATGAGAGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                          ttgaagctttgggctacgtggatgaccagctgttcgtgttctatgatgatgatgagtcgcc
                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAAATCACAACCACAGCAAGGAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         aaaatcacaaccacaagcaaggagtcccacaccctgcaggtcatcctggggctgtgaaatgc
                                                                                                                                                                                                                                                                                                                                                                                            ;
                                                                                                                                                    Length
                                                                                                                                                                      Indels
                                                                                                                        Sequence 1440 BP; 348 A; 354 C; 407 G; 331 T; 0 other;
                                                                                                                                                   22;
                                                                                                                                                                      ö
                                                                                                                                                    DB
New hereditary hemochromatosis gene products for treating hereditary hemochromatosis in a chelation agent alleviating iron overload -
                                                                                                                                                   100.0%; Score 1440;
Similarity 100.0%; Pred. No. 0;
40; Conservative 0; Mismatches
                                       English
                                      Fig 4; 108pp;
                                      Disclosure;
                                                                                                                                                    Query Match
Best Local Simi
Matches 1440;
                                                                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    199
                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                                       361
                                                                                                                                                                                                                                                                                                                                                                                                                                         361
                                                                                                                                                                                                                                                                                                                                                                                                                                                            421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      721
                                                                                                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                           ద
                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                         g
                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                               ద
                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                       οy
                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
```

```
1260
                                                                                                                                                           1020
                                                                                                                                                                                      1020
                                                                                                                                                                                                                   1080
                                                                                                                                                                                                                                                                                                                                  1200
                                                                                                                                                                                                                                                                                                                                                              1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                    1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RK;
                                                                                                                            960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Wolff
                                                                                                                                                                                                                                                                                                                                GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTACCAGGTGGAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                          GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1321 AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAACATAGAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1381 TGCCTGACGAACTCCTTGATTTTAGCCTTCTCTGTTCATTTCCTCAAAAAGATTTCCCCA
                                                                                                                                                         ATGCCAAGGAGTTCGAACCTAAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT
                                                                                                                                                                          CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA
                                                                                                                                                                                                                                                                                         TAATATTAAGGAAGAGCCAGGGTTCAAGAGGAGCCATGGGGCACTACGTCTTAGCTGAAC
             gecetgeacagetgeageagttgetggagetgggggagaggtgttttggaccaacaagtge
                                                                        ctcctttggtgaaggtgacacatcatgtgacctcttcagtgaccactctacggtgtcggg
                                                                                                  CCTTGAACTACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCAGTGG
                                                                                                                   Ζ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Tsuchihashi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  24d1 mutation cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HH; hereditary hemochromatosis; chelation agent; T-cell differentiation factor; iron overload; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ruddy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gnirke A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Human hereditary hemochromatosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         96US-0630912.
96US-0632673.
96US-0652265.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            standard; DNA; 1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             97US-0834497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (BIRA ) BIO-RAD LAB INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Drayna DT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          04-APR-1996;
16-APR-1996;
23-MAY-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US6140305-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     21-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   31-0CT-2000
```

m

```
(BIRA ) BIO-RAD LAB INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                04-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  04-APR-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US6140305-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          16-APR-1996;
23-MAY-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              21-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAC68431;
                                                                                                                                                           1021
                                                                                                                                                                              1021
                                                                                                                                                                                                                 1081
                                                                                                                                                                                                                                   1141
                                                                                                                                                                                                                                                   1141
                                                                                                                                                                                                                                                                     1201
                                                                                                                                                                                                                                                                                     1201
                                                                                                                                                                                                                                                                                                        1261
                                                                                                                                                                                                                                                                                                                        1261
                                                                                                                                                                                                                                                                                                                                          1321
                                                                                                                                                                                                                                                                                                                                                                                               1381
721
                                 781
                                                   841
                                                                    841
                                                                                                       901
                                                                                                                         961
                                                                                                                                          961
                                                                                                                                                                                               1081
                781
                                                                                      901
                                                                                                                                                                                                                                                                                                                                                                                                                                 AAC68431
                                QQ
                                                οy
                                                                   g
                                                                                      δλ
                                                                                                     qq
                                                                                                                        Qγ
                                                                                                                                         qq
                                                                                                                                                       δ
                                                                                                                                                                           qq
                                                                                                                                                                                           οy
                                                                                                                                                                                                             qq
                                                                                                                                                                                                                                 Óγ
                                                                                                                                                                                                                                                Dp
                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                       q
                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                         qq
                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                           ōλ
                                                                                                                                                                                      ö
                                                                             The present invention relates to hereditary hemochromatosis gene products. These proteins may be used to treat a patient diagnosed as having human hemochromatosis disease. It is also useful as a metal chelation agent or as a T-cell differentiation factor, and for alleviating iron overload. They may also be used in protein replacement therapy for individuals having a defective human hemochromatosis gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      099
                                                                                                                                                                                                                                                    180
                                                                                                                                                                                                                                                                                                180
                                                                                                                                                                                                                                                                                                                 240
                                                                                                                                                                                                                                                                                                                                 240
                                                                                                                                                                                                                                                                                                                                                   300
                                                                                                                                                                                                                                                                                                                                                                    300
                                                                                                                                                                                                                                                                                                                                                                                     360
                                                                                                                                                                                                                                                                                                                                                                                                       360
                                                                                                                                                                                                                                                                                                                                                                                                                         420
                                                                                                                                                                                                                                                                                                                                                                                                                                                            480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    009
                                                                                                                                                                                                                                           ACTAAAGTICIGAAAGACCIGIIGCIITITCACCAGGAAGIITITACIGGGCAICICCIGAG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                          ttgaagetttgggetaegtggatgaeeagetgttegtgttetatgateatgagagtegee 420
                                                                                                                                                                                                        09
                                                                                                                                                                                                                         9
                                                                                                                                                                                       Gaps
                        New hereditary hemochromatosis gene products or polypeptides, useful for treating hereditary hemochromatosis in a patient, and as a metal chelation agent alleviating iron overload -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      541 aaaatcacaaccacagcaaggagtcccacacctgcaggtcatcctgggctgtgaaatgc
                                                                                                                                                                                                                                                                                                                                                            TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                                                                                                                                                                                 AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCCAGGC
                                                                                                                                                                                                                                                                                                                                  aagcggagatttaacggggacgtgcggccagagctggggaaatgggcccgcgagccaggc
                                                                                                                                                                                                                                                                                                                                                                                      CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGGCAGGACCACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AATTCTGCCCTGACACACTGGATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGC
                                                                                                                                                                                                                          CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCCCAAAAG
                                                                                                                                                                                                                                                                                                                                                   CGGCGCTTCTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCTGCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                         TTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATGATGAGAGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAAATCACAACCACAGGAAGGAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 1440;
                                                                                                                                                                                      ;
                                                                                                                                                                                      1; Indels
                                                                                                                                          Sequence 1440 BP; 348 A; 355 C; 406 G; 331 T; 0 other;
                                                                                                                                                                    22;
                                                                                                                                                                     DB
                                                                                                                                                                   Score 1438.4; Pred. No. 0; 0; Mismatches
                                                            Disclosure; Fig 4; 108pp; English
                                                                                                                                                                                      0;
                                                                                                                                                                   99.98;
                                                                                                                                                                            Best Local Similarity 7.7.7 Matches 1439; Conservative
                                                                                                                                                             Query Marc.
                                                                                                                                                                     Match
                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                                   241
                                                                                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                                                                                         361
                                                                                                                                                                                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                                                                                                                                                                            421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             721
                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                     301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                           ద
                                                                                                                                                                                                                                                                                                            δy
                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                              QQ
                                                                                                                                                                                                                                                                                                                                                                                    δy
                                                                                                                                                                                                                                                                                                                                                                                                  Op
                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                        QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ω
à
                                                                                                                                                                                                                                           ŏ
```

```
1440
                                                                                                                                                                                                                                                                                1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              840
                                                                                                                 900
                                                                                                                                                          900
                                                                                                                                                                                               960
                                                                                                                                                                                                                                      960
                                                                                                                                                                                                                       taatattaaggaagaggcagggttcaagaggagccatggggcactacgtcttagctgaac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tggagtgggaaaggcacaagattcgggccaggcagaacagggcctacctggagagggact
                                                          CCTTGAACTACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCAATGG
                                                                                                                                                                                                                                                                                ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT
                                                                                                                                                                                                                                                                                                     GGATAACCTTGGCTGTACCCCCTGGGGAAGAGAGAGATATACGTACCAGGTGGAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                       ggataaccttggctgtaccccctgggggaagagcagagatatacgtaccaggtggagcacc
                                                                                                                                                                                                                                                                                                                                                                                                                                          CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTGGAGTCATCAGGAATTGCTGTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGCACTACGTCTTAGCTGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAACATAGAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1381 TGCCTGACGAACTCCTTGATTTTAGCCTTCTCTGTTCATTTCCTCAAAAGATTTCCCCA
                                                                                                                     CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Human hereditary hemochromatosis 24d2 mutation cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HH; hereditary hemochromatosis; chelation agent;
T-cell differentiation factor; iron overload; ss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ВР
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             96US-0630912.
96US-0632673.
96US-0652265.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAC68431 standard; DNA; 1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        97US-0834497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
```

```
;
0
                                                                                                                     The present invention relates to hereditary hemochromatosis gene products. These proteins may be used to treat a patient diagnosed as having human hemochromatosis disease. It is also useful as a metal chelation agent or as a T-cell differentiation factor, and for alleviating iron overload. They may also be used in protein replacement therapy for individuals having a defective human hemochromatosis gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        900
                                                                                                                                                                                                                                                                                                                                                                                               240
                                                                                                                                                                                                                                                                                                                                                                                                                    240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC 480
      RK;
                                                                                                                                                                                                                                                                                                                                                                           180
                                                                                                                                                                                                                                                                                                                                                                                                                                        300
                                                                                                                                                                                                                                                                                                                                                                                                                                                            300
                                                                                                                                                                                                                                                                                                               ACTAAAGTTCTGAAAGACCTGTTGCTTTTCACCAGGAAGTTTTACTGGGCATCTCCTGAG 120
                                                                                                                                                                                                                                                                      9
                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                   Gaps
                                                         New hereditary hemochromatosis gene products or polypeptides, useful for treating hereditary hemochromatosis in a patient, and as a metal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGCGCAGGACCACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Wolff
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tgagtcagagtctgaaagggtgggatcacatgttcactgttgacttctggactattatgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAAATCACAACCACAGCAAGGAGTCCCACACCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                                                                                                                                                                                                 cctaggcaatagctgtagggtgacttctggagccatccccgtttccccgcccccaaaag
                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGGGGCCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                       aagcggagatttaacggggacgtgcggccagagctggggaaatgggcccgcgaggccaggg
                                                                                                                                                                                                                                                                                                                                                                                                                                         CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCGTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                                                                                        CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCCCAAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 1440;
                                                                                                                                                                                                                                                  ;
       7
       Tsuchihashi
                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                              Sequence 1440 BP; 347 A; 354 C; 408 G; 331 T; 0 other;
                                                                                                                                                                                                                              DB 22;
                                                                                                                                                                                                                                                   1;
       Ď,
                                                                               chelation agent alleviating iron overload .
                                                                                                                                                                                                                             Score 1438.4;
Pred. No. 0;
                                                                                                                                                                                                                                                   0; Mismatches
       Ruddy
         À,
                                                                                                     Disclosure; Fig 4; 108pp; English
         Gnirke
                                                                                                                                                                                                                              Query Match 99.9%;
Best Local Similarity 99.9%;
Matches 1439; Conservative
        ΩĬ,
                                        WPI; 2001-006341/01
           Drayna
           MJ,
                  Feder JN;
           Thomas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         661
                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     601
                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                             241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                           QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ρp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                  g S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                 QQ
                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                            ò
δ
                                                                                                                                                                                                                                                                                                                 ò
```

```
TGCCTGACGAACTCCTTGATTTTAGCCTTCTCTTTTTTTCCTCAAAAAGATTTCCCCA 1440
                                                                                                                                                                                                              1200
                                                                                                                                                                                                                                           1260
                                                                                                                      1020
                                                                                                                                    1020
                                                                                                                                                   1080
                                                                                                                                                                  1080
                                                                                                                                                                                                                            1200
                                            840
                                                          900
                                                                          900
                                                                                         960
               780
                                                                                                                                                           CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACGTCTGGCACCCTAGTCA
                                                                                                                                                                                                                      TAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGCACTACGTCTTAGCTGAAC
TTGGAGTCATCAGTGGAATTGCTGTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCA
                                     CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
                                                                  ctctttggtgaaggtgacacatcatgtgacctcttcagtgaccactctacggtgtcggg
                                                                                                 ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCCAATGGGGATGGGACCTACCAGGGCT
                                                                                                                                                    GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTACCAGGTGGAGCACC
                              GCCCTGCACAGCTGCAGTTGCTGGAGCTGGGGAGGTGTTTTGGACCAACAAGTGC
                                                                                          CCTTGAACTACCTCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           rc to G substitution (24d2 mutation) results in His to Asp substitution"
                                                                                                                                                                                                                                                                                                                                                                                                                                                   diagnosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    toxicity;
                                                                                                                                                                                                                                                                                                                                                                                                                                    Hereditary haemochromatosis gene cDNA clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                          prenatal screening; human;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
222.1268
/*tag= a
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hereditary haemochromatosis; metal
                                                                                                                                                                                                                                                                                                                                                                                         BP.
                                                                                                                                                                                                                                                                                                                                                                                        AAT96691 standard; cDNA; 1440
                                                                                                                                                                                                                                                                                                                                                                                                                       (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ည်
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               408
                                                                                                                                                                                                                                                                                                                                                                                                                                                              qene therapy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                       14-APR-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             variation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                mutation
                                                                                                                                                                                                                                                                                           1261
                                                                                                                                                                                                                                                                                                                                       1381
                                                                                                                                                                                                                                1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ношо
                                                                                                                                                                                    1081
                                                                                                                                                                                                                                                              1201
                                                                                                                                                                                                                                                                             1261
                                                                                                                                                       1021
                                                                                                                                                                                                   1081
                                                                                                                                                                                                                  1141
                                                                                                                                                                                                                                               1201
                   721
                                               781
                                                              841
                                                                              841
                                                                                             901
                                                                                                           901
                                                                                                                         961
                                                                                                                                        196
                                                                                                                                                                      1021
                                 781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Key
   721
                                                                                                                                                                                                                                                                                                                                                                                    AAT96691
                                                                                                                                                                                                                                                                                                                                                                            RESULT
                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                          Óλ
                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                       ŏ
                                                                                                                                                                    g
                                                                                                                                                                                                  g
                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                Dp
                                                                                                                                                                                                                                                δλ
                                                                                                                                                                                                                                                                             ò
                                                                              ద
                                                                                                         g
                                                                                                                         οχ
                                                                                                                                        g
                                                                                                                                                       δ
                                                                                                                                                                                    ŏ
               g
                                               g
                                                              ò
                                                                                             ò
                                  Q
```

Ŋ

t

```
Hereditary haemochromatosis gene and variants – useful for diagnosis and treatment of hereditary haemochromatosis disease
                         i
"G to A substitution (24d1 mutation
associated with HH), results in Cys
Tyr substitution"
       A to T substitution (24d7 variant) results in Ser to Cys substitution"
                                                                                                                                     Ruddy D,
                                                                                                                                                                                           Disclosure; Fig 4; 115pp; English.
                                                                                                                                    Gnirke A,
       "A to T
                                                                                                                       (MERC-) MERCATOR GENETICS INC.
                                                                                              96US-0652265.
96US-0630912.
96US-0632673.
                                                                                  97WO-US06254
                                                                                                                                    Feder JN, Gn
Z, Wolff RK;
 /*tag=
/note=
                         /*tag=
/note=
                   1066
                                                                                                                                                     WPI; 1997-512743/47.
                                                                                                                                                             P-PSDB; AAW36499
                                                                                                                                         rsuchihashi 2,
                                                                                            23-MAY-1996;
04-APR-1996;
16-APR-1996;
                                                                                 04-APR-1997;
                                                        WO9738137-A1
                                                                                                                                                                                                                                                                                                                                                                                                        therapeutics
                                                                     16-OCT-1997
                                                                                                                                    Drayna DT,
                   mutation
```

Thomas WJ;

This cDNA clone, designated cDNA24, is derived from human gene whose mutated form is associated with hereditary haemochromatosis (HH). It was obtained from a directionally cloned plasmid-based CDNA library following identification of the HH locus in the HLA region of chromosome 6. A single mutation (24d1) in the HH gene appears responsible for the majority of HH disease. This comprises a G to A substitution that is present in 86% of affected chromosomes and in 4% of unaffected chromosomes. It results in a chromosomes and in 4% of unaffected chromosomes. It results in a critical disulphide bridge important for secondary structure. The critical disulphide bridge important for secondary structure. The critical disulphide bridge important for secondary structure. The Argo6090, the 1437 bp cDNA sequence [1a] and their 24d1, 24d2 and 24d7, variants; a cloning or expression vector; host cells; a peptide product chosen from the HH gene product, its variants (24d1, 24d2 and 24d7), or a peptide of at least 56 amino acid residues of these; an antibody produced using the peptide; a method mutation; an antibodel for the HH disease; metal chelation an annimal medel for the HH disease; metal chelation and annimal medel for the HH disease; metal chelation and annimal medel for the HH disease; metal chelation and annimal medel for the HH disease; metal capents for mitigation of injury due to oxidative process in vivo or mitigation of injury in connection with HH disease. or pairs of oligonuclectides covering a range of nuclectides from (1), (1a) or their variants, useful for detecting a polymorphism in the HH gene. The invention also relates to methods for screening therapeutic agents for activity in connection with HH disease; an antisense oligonucleotide directed against a transcriptional product of a nucleic acid sequence as above; and oligonucleotides for HH homozygotes, to HH diagnosis, prenatal screening and diagnosis, and therapies of HH disease, including gene therapy, protein- and antibody-based therapeutics, and small molecule

Sequence 1440 BP; 347 A; 355 C; 407 G; 331 T; 0 other;

ö 0; Gaps 2; Indels Score 1436.8; Pred. No. 0; 0; Mismatches 0; 99.88; Matches 1438; Conservative Local Similarity

Length 1440;

DB 18;

CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA 1140 120 180 300 300 360 360 420 420 480 540 540 900 900 099 099 720 900 CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGGCCCCCCAAAAG ACTAAAGTICIGAAAGACCIGIIGCIITITCACCAGGAAGIIIIACIGGGCAICICCIGAG AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGGAAATGGGCCCGCGAGGCCAGGC CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT TIGAAGCITIGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATGATGAGAGTCGCC 541 aaaatcacaaccacagcaaggagtcccacaccctgcaggtcatcctgggctgtgaaatgc CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGGGTCCTGCAGGGGGCGCTTGCTGCGTT GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC AATTCTGCCCTGACACACTGGATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACGAGC aattctgccctgacacactggattggagagcagcagaacccagggcctggcccaccaagc 781 gccctgcacagctgcagcagttgctggagctggggagaggtgttttggaccaacaagtgc 841 ctcctttggtgaaggtgacacatcatgtgacctcttcagtgaccactctacggtgtcggg TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG AAAATCACAACCACAGCAAGGAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGC AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGGGCAGGACCACCTTG CCTTGAACTACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCCAATGGGGATGGGACCTACCAGGGCT GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTACCAGGTGGAGCACC TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGGACT GCCCTGCACAGCTGCAGCAGTTGCTGGAGCTGGGGAGGGTGTTTTGGACCAACAAGTGC 841 CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG 241 121 121 181 241 301 301 361 361 421 421 481 181 541 601 601 661 661 721 721 1021 781 1081 901 901 961 1021 1081 ŏ g q g ò δy δ Dp δ a ò d ò g δ g δ g g ŏ ò g ŏ g g Op g δ δ Qγ ŏ g g Dp ŏ

Query Match

ø

```
The present invention relates to hereditary hemochromatosis gene products. These proteins may be used to treat a patient diagnosed as having human hemochromatosis disease. It is also useful as a metal chelation agent or as a T-cell differentiation factor, and for alleviating iron overload. They may also be used in protein replacement therapy for individuals having a defective human hemochromatosis gene.
RK;
                                                                    taatattaaggaagaggcagggttcaagaggggccatggggcactacgtcttagctgaac 1260
                                                                                           GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG 1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             polypeptides, useful
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Wolff
                                                                                                                                                                                   AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAACATAGAAAT
                                                                                                      TAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGGCACTACGTCTTAGCTGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      and as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Tsuchihashi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             or polype
patient,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 1440 BP; 347 A; 355 C; 407 G; 331 T; 0 other
                                                                                                                                                                                                                                                                                                                                                          HH; hereditary hemochromatosis; chelation agent;
T-cell differentiation factor; iron overload; ss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          New nereditary hemochromatosis gene products for treating hereditary hemochromatosis in a chelation agent alleviating iron overload -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ruddy
                                                                                                                                                                                                                                                                                                                                  Human hereditary hemochromatosis cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Disclosure; Fig 4; 108pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ą
                                                                                                                                                                                                                                                                   ВР
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gnirke
                                                                                                                                                                                                                                                                 DNA; 1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  96US-0630912.
96US-0632673.
96US-0652265.
                                                                                                                                                                                                                                                                                                                                                                                                                                                             97US-0834497
                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (BIRA ) BIO-RAD LAB INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WJ, Drayna DT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 2001-006341/01
                                                                                                                                                                                                                                                                   standard;
                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                            04-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               16-APR-1996;
23-MAY-1996;
                                                                                                                                                                                                                                                                                                               21-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                  US6140305-A
                                                                                                                                                                                                                                                                                                                                                                                                                                         31-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    04-APR-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Feder JN;
                                                                                                                                                                                                                                                                 AAC68429
                                                                                                                                                                                                                                                                                       AAC68429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      rhomas
                         1141
                                                                     1201
                                                                                                                                         1321
                                                                                                                                                               1321
                                                1201
                                                                                                                  1261
                                                                                            1261
                                                                                                                                                                                                                                                        AAC68429
                                                                                                                                                                                                                                                                             q
                                                                                                                                                                                                          g
                        g
                                                à
                                                                     a
                                                                                            ò
                                                                                                                 g
                                                                                                                                         ò
                                                                                                                                                                                     ò
```

ó

Gaps

ö

Indels

Length 1440;

DB 22; ;

Score 1436.8; Mismatches No. 0;

Pred.

99.88;

; 0

Conservative

Local Similarity tes 1438; Conserv

Best Loca Matches 1

Query Match

```
1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           900
                                                                                                                                                                                                                                                                                                                                                                                                                            900
                                                                                                                                                                                                                                                                                                                                                                                                                                           960
                                                                                                                                                                                                                                                                                                                                                                                                                                                         960
                                                                                                                                                                                                                                    540
                                                                                                                                                                                                                                                  540
                                                                                                                                                                                                                                                                900
                                                                                                                                                                                                                                                                              900
                                                                                                                                                                                                                                                                                            9
                                                                                                                                                                                                                                                                                                          9
                                                                                                                                                                                                                                                                                                                        720
                                                                                                                                                                                                                                                                                                                                      720
                                                                                                                                                                                                                                                                                                                                                     780
                                                                                                                                                                                                                                                                                                                                                                  780
                                                                                                                                                                                                                                                                                                                                                                                  840
                                                                                                                                                            360
                                                                                                                                                                          420
                                                                                                                                                                                         420
                                                                                                                                                                                                        480
                                                                                                                                                                                                                      480
                                                                                      240
                                                                                                    240
                                                                                                                  300
                                                                                                                                300
                                                                                                                                              360
                                                         180
9
             9
                                                                                                                                                                                                                                                                                                                                                            ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGGCAGGACCACCTTG
                                                                                                                                                                                                                                                                                                                                  CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                            CCTTGAACTACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCAATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                           cettgaactactacceccagaacateaccatgaagtggetgaaggataageagecaatgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTACCAGGTGGAGCACC
                                                        TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                                                                                                             AATTCTGCCCTGACACACTGGATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGC
                                                                                                                                                                                                                                                                                                                                                     TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGCCAGAACAGGGCCTACCTGGAGAGGGACT
                                                                                                                                                                                                                                                                                                                                                                                  GCCCTGCACAGCTGCAGTTGCTGGAGCTGGGGAGGGTGTTTTGGACCAACAAGTGC
       CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                        GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC
                                                                                                                                                                                                                                                                 AAAATCACAACCACAGCAAGGAGTCCCAACACCCTGCAGGTCATCCTGGGCTGTGAAATGC
                             ACTAAAGTTCTGAAAGACCTGTTGCTTTTCACCAGGAAGTTTTACTGGGCATCTCCTGAG
                                                                                                                   cacactetetgeactacetetteatgggtgeeteagageaggaeettggtettteettgt
                                                                                                                                                                            TIGAAGCTTIGGGCTACGIGGAIGACCAGCIGITCGIGITCTAIGAIGAIGAGAGICGCC
841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                            901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1021
                                                                                                                                                                                                                                                     481
                                                                                                                                                                                                                                                                                               601
                                                                                                                                                                                                                                                                                                             601
                                                                                                                                                                                                                                                                                                                                        661
                                                                                                                                                                                                                                                                                                                                                                                                                 841
                                                                                                                                                                                                                                                                                                                                                                                                                                             901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        961
                               61
                                             61
                                                            121
                                                                         121
                                                                                        181
                                                                                                       181
                                                                                                                     241
                                                                                                                                   241
                                                                                                                                                 301
                                                                                                                                                               301
                                                                                                                                                                             361
                                                                                                                                                                                            361
                                                                                                                                                                                                          421
                                                                                                                                                                                                                         421
                                                                                                                                                                                                                                        481
                                                                                                                                                                                                                                                                   541
                                                                                                                                                                                                                                                                                 541
                                                                                                                                                                                                                                                                                                                           561
                                                                                                                                                                                                                                                                                                                                                       721
                                                                                                                                                                                                                                                                                                                                                                     721
                                                                                                                                                                                                                                                                                                                                                                                   781
                                                                                                                                                                                                                                                                                                                                                                                                  781
                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                       qq
                                                                                                                                                                                                                                                                                                                                                                                                 qq
                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                             Dp
                                                                                                                                                                                         q
                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                        δλ
                                                                                                                                                                                                                                                   q
                                                                                                                                                                                                                                                                   QΫ́
                                                                                                                                                                                                                                                                               QQ
                                                                                                                                                                                                                                                                                           οχ
                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                    Db
                                                                                                                                                                                                                                                                                                                                                                                   Ω
                                                                                                                                                                                                                                                                                                                                                                                                                 δy
                                                                        QQ
                                                                                                     g
                                                                                                                     δ
                                                                                                                                  q
                                                                                                                                                 ÓΣ
                                                                                                                                                                             δλ
                                                                                                                                                                                                         ŏλ
            g
                               ò
                                             g
                                                          δ
                                                                                        Qγ
```

~

```
This sequence represents the haemochromatosis (HC) gene. Mutations in this sequence are detected using the method of the invention. The method is for identifying an individual with hereditary haemochromatosis (HH) or a predisposition to develop HH or to genetically pass on HH to an offspring, comprising isolating a biological sample and amplifying a coffspring, comprising isolating a biological sample encompassing all or part of the DNA between markers D65265 and D65276, and detecting at least one homozygous or heterozygous mutation in a nucleotide within the region. The method can also be used for identifying an individual with an autosomal recessive discorder (ARD) or predisposition to develop and/or genetically pass on an ARD to an offspring, comprises isolating a biological sample from the individual and screening genomic DNA in the sample for the presence of a homozygous or heterozygous mutation in a
                                                                                                              1260
CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA 1140
                                                                   AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAACATAGAAAT 1380
                                                                                                                                                                                                                                HC gene; HH identification; diagnosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 hereditary
                                                                                                                                                                                                                                                                      TAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGCACTACGTCTTAGCTGAAC
                                                                                                                                   taatattaaggaagaggcagggttcaagaggagccatggggcactacgtcttagctgaac
                                                                                                                                                                              TIGGAGICATCAGIGGAATIGCIGITITIGICGICATCTIGITCATIGGAATITIGITCA
                                                                                                                                                              GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              particularly
the HC gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ĽŃ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Powell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (COUN-) COUNCIL QUEENSLAND INST MEDICAL RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Detection of autosomal recessive disorder haemochromatosis, by detecting a mutation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Jazwinska
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Disclosure; Page -; 32pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               autosomal recessive disorder; ss.
                                                                                                                                                                                                                                                                                                                                                                       BP.
                                                                                                                                                                                                                                                                                                                                                                   AAV23525 standard; mRNA; 2727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hereditary haemochromatosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        97WO-AU00539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  96AU-0002083
                                                                                                                                                                                                                                                                                                                                                                                                                           (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Cullen LM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Haemochromatosis gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WPI; 1998-179064/16.
                                                                                                                                                                                                                                                                                                                                                                                                                          10-JUL-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WO9807884-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       22-AUG-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 03-SEP-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  23-AUG-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Busfield F,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             26-FEB-1998.
                                                                                                                                                                                                                                                                                                                                                                                                AAV23525;
                                                                                                                                                                                                                                                                                                                                         ٥
                                                                             1141
                                                                                                                                   1201
                                                                                                                                                              1261
                                                                                                                                                                                        1261
                                                                                                                                                                                                                  1321
1081
                                                   1141
                                                                                                         1201
                                                                                                                                                                                                                                                                                                                                                      AAV23525
                                                                                                                                                                                                                                                                                                                                         RESULT
                                                                                                                                                                                                                                                                                                                                                                     ŏ
                           g
                                                                            qq
                                                                                                         δŏ
                                                                                                                                g
                                                                                                                                                                                      g
                                                                                                                                                                                                                                         q
                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                 g
                                                   ò
                                                                                                                                                           δ
                                                                                                                                                                                                                  à
```

```
gene, the normal function of which, is required to prevent progression of the disorder. The method(s) can be used to identify individuals that are monozygous or heterozygous (carriers) for the mutation causing the ARD. Especially the method is used to diagnose HH or predisposition to HH by detecting a Cys2827yr substitution. Individuals homozygous for this mutation have HH and heterozygotes are potential carriers of the
                                                                                                                                                                                disease
        888888888888
```

T; 0 other; C; 660 G; 759 Sequence 2727 BP; 702 A; 606

```
ö
                                                                                                                         CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCGGTTTCCCCGCCCCCCAAAG 180
                                                                                                                                                                     240
                                                                                                                                                                                                              300
                                                                                                                                                                                                                                  300
                                                                                                                                                                                                                                                       360
                                                                                                                                                                                                                                                                           360
                                                                                                                                                                                                                                                                                                420
                                                                                                                                                                                                                                                                                                                    420
                                                                                                                                                                                                                                                                                                                                         480
                                                                                                                                                                                                                                                                                                                                                              480
                                                                                                                                                                                                                                                                                                                                                                                   540
                                                                                                                                                                                                                                                                                                                                                                                                      540
                                                                                                                                                                                                                                                                                                                                                                                                                            900
                                                                                                                                                                                                                                                                                                                                                                                                                                               009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       780
                                                                                ACTAAAGTTCTGAAAGACCTGTTGCTTTTCACCAGGAAGTTTTACTGGGCATCTCCTGAG 120
                       Gaps
                                          9
                                                              9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG 900
                                       cctaggcaatagctgtagggtgacttctggagccatccccgtttccccgccccaaaag
                                                                                                                                                                                                             CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGGGGTCCTGCAGGGGGCGCTTGCTGCGTT
                                                                                                                                                                                                                                                                                                        tgagtcagagtctgaaagggtgggatcacatgttcactgttgacttctggactattatgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGCACAACAGGGCCCTACCTGGAGGGGACT
                                                                                                                                                                 181 AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCCAGGC
                                                                                                                                                                                                                                                     CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                               TTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTTCTATGATGATGAGAGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                                                                                                                                                                                                                                                                                         541 AAAATCACAACCACAGGAAGGAGTCCCACACCCTGCAGGTCATCCTGGGGCTGTGAAATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                              aaaatcacaaccacagcaaggagtcccacaccctgcaggtcatcctggggctgtgaaatgc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAGAAGACAACAGCTACCGAAGGCTACTGGAAGTACGGGTATGATGGGCAGGACCACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AATTCTGCCCTGACACACTGGATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCCTGCACAGCTGCAGCAGTTGCTGGAGCTGGGGAGAGGTGTTTTGGACCAACAAGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tggagtgggaaaggcacaagattcgggccaggcagaacagggcctacctggagagggact
  Length 2727;
                                                                                                                                                                                                                                                                                                                                                                                             ö
                      Indels
  DB 19;
                     5;
Score 1436.8;
Pred. No. 0;
                     0; Mismatches
99.8%;
                     Conservative
           Best Local Similarity
Matches 1438; Conserv
Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                    481
                                                                                61
                                                                                                   61
                                                                                                                         121
                                                                                                                                            121
                                                                                                                                                                                      181
                                                                                                                                                                                                             241
                                                                                                                                                                                                                                                     301
                                                                                                                                                                                                                                                                         301
                                                                                                                                                                                                                                                                                              361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       841
                                                                                                                                                                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  781
                                       à
                                                           g
                                                                                δ
                                                                                                  g
                                                                                                                                            g
                                                                                                                        QΫ́
                                                                                                                                                                 οy
                                                                                                                                                                                    g
                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                       Ω
                                                                                                                                                                                                                                                                                                               Db
                                                                                                                                                                                                                                                                                                                                                                                                 QΩ
                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                      Ω
                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                               οχ
                                                                                                                                                                                                                                                                                                                                                                                                                         QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
```

```
ATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTAT 641
                                                                           24-MAR-2000;
                                                                                           26-MAR-1999;
                                                            05-OCT-2000
mutation
                                                                                                                                                                                                                                                                                                                                                                                                               282
                                                                                                                                                                                                                                                                                                                                                                                                                                               342
                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            301
d
                                                                                                                                                                                                                                                                                                                                                                                                                                               δý
                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                        /*tag= a
/*tag= a
/product= "histocompatibility iron loading (HFE) protein"
                                                                                                                                                                                                                                      1440
                                                                                                                                                                                                                                                                                                                                                                         sequence encoding a histocompatibility iron loading (HFE) protein
                                                                                                                                                                                                                CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA 1140
                                                                                                                                          TIGGAGTCATCAGTGGAATTGCTGTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCA 1200
                                                                                                                                                  TAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGGCACTACGTCTTAGCTGAAC 1260
                                                                                                                                                                                         1260
                                                                                                                                                                                                        GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG 1320
ctectttggtgaaggtgacacatcatgtgacetetteagtgaccaetetaeggtgteggg 900
                                                                                                                                                                                                                                                                             CCTTGAACTACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG
                                              961 ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT
                                                              961 atgccaaggagttcgaacctaaagacgtattgcccaatggggatgggacctaccagggct
                                                                             GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTACCAGGTGGAGCACC
                                                                                                                                                                                                                                                                      TGCCTGACGAACTCCTTGATTTTAGCCTTCTCTGTTCATTTCCTCAAAAAGATTTCCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "if this base is mutated to T, then the protein contains the mutation S65C"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     the
                                                                                                                                                                                                                                                                                                                                                                                        HFE protein;
class I gene;
ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     base is mutated to C, then contains the mutation G93R"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /*tag= c
/note= "if this base is mutated to G, i
protein contains the mutation I
                                                                                                                                                                                                                                                                                                                                                                                        Human; histocompatibility iron loading protein; major histocompatibility complex; non-classical chromosome 6p; iron disorder; haemochromatosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
1..1044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "if this Protein
                                                                                                                                                                                                                                                                                                                            standard; cDNA; 2506 BP
                                                                                                                                                                                                                                                                                                                                                           (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Д
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /*tag-
/note-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /*tag=
/note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 *tag=
                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens
                                                                                                                                                                                                                                                                                                                                                           19-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sig_peptide
                                                                                                                                                                                                                                                                                                                            AAA96769
                                                                                                                                                                                                                                                                                                                                            AAA96769;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mutation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mutation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mutation
                                                                                                                                                                                                         1261
                                                                                                                                                                                                                                                                       1381
                                                                                                                                                                                                                                                                                                                                                                           CDNA
                                                                                                                                            1141
                                                                                                                                                                           1201
                                                                                                                                                                                                                                                                                      1381
                                                                              1021
                                                                                                             1081
  841
                                901
                                                                                                                                                                                                                                                                                                                   RESULT
                                                                                                                                                                                      g
                                                                                                                                                                                                                     Ω
                                                                                                                                                                                                                                                       원
                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                     g
                                                                                           q
                                                                                                            ò
                                                                                                                        셤
                                                                                                                                          ò
                                                                                                                                                       g
                                                                                                                                                                         ò
                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                       οy
                               g
                                                ò
                                                              g
                                                                            ογ
```

```
The present sequence encodes a human histocompatibility iron loading (HFE) protein. The HFE gene is a major histocompatibility (MHC) non-classical class I gene located on chromosome 6p. Mutations in the gene lead to iron disorders. The specification describes a method for diagnosing an iron disorder or a genetic susceptibility to develop the disorder in a mammal. The method comprises determining the presence of a mutation in exon 2 or an intron of a HFE gene or protein. The mutation is not a C to G missense mutation at nucleotide 187 of the sequence given in A95769 (Genbank Accession number U60319). The presence of the mutation indicates the disorder or the genetic susceptibility to the disorder. The method is used to diagnose an iron disorder e.g. haemochromatosis, or a genetic susceptibility to develop it.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a mutation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gaccttggtctttccttgtttgaagctttgggctacgtggatgaccagctgttcgtgttc 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gacttetggaetattatggaaaateacaaeceacageaaggagteeceaeeecetgeaggte 360
/*tag= f
/*tag= "if this base is mutated to C, then the
/note= "if this base is mutated to C, which
protein contains the mutation I105r, which
is associated with an iron overload disorder"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61 caggggggcttgctgggttcacactctctgcactacctcttcatgggtgcctcagagcag 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Diagnosing an iron disorder e.g. hemochromatosis or a genetic susceptibility to develop it, by determining the presence of a mutat in exon 2 or an intron of a histocompatibility iron loading nucleic acid.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          222 ATGGGCCCGCGGGGCGGCGCGCTTCTCCTCGTGTTTTGCAGACCGCGGTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CAGGGGCGCTTGCTGCGTTCACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 atgggcccgcgagccaggccggcgcttctcctctgatgcttttgcagaccgcggtcctg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GACCTIGGTCTTTCCTTGTTTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TATGATGATGAGAGTCGCCGTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGCCAGATGTGGCTGCAGCTGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2506;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 21; Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 2506 BP; 648 A; 552 C; 596 G; 710 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 1215.8;
Pred. No. 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pred. No. 0;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Barton JC;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Disclosure; Page 2-3; 55pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sawada-Hirai R,
                                                                                                                                                                                                                                                                                                                                                                                                        (BILL-) BILLUPS-ROTHENBERG INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 84.4%;
Best Local Similarity 99.8%;
Matches 1217; Conservative 0
                                                                                                                                                                                                                                                                                         2000WO-US07982.
                                                                                                                                                                                                                                                                                                                                               99US-0277457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 2000-647244/62.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  P-PSDB; AAB19149
                                                                                                                                                                             WO200058515-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Rothenberg BE,
```

ö

```
cerebroprotective; nootropic; neuroprotective; antibacterial; virucide; fungicide; ophthalmological; cytostatic; immunosuppressive; nootropic;
                                                                                                                                                                                                                                                                                                           CAAAACTAGAGACTCAAAGAGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGT 1361
                                                                                                                                                                                                                                                                                                                                                                                                    AAGGATAAGCAGCCAATGGATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGG 1001
                                                                                                                                                                                                                                                                    CCGTCTGGCACCCTAGTCATTGGAGTCATCAGTGGAATTGCTGTTTTGTCGTCATCTTG 1181
                                                                                                                                                                                                                                                                                                   CACTACGTCTTAGCTGAACGTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGA 1301
                                                                                                                                                                                                                                                                                                                                                                             caaaactagagactcaaagagggagtgcatttatgagctcttcatgtttcaggagagagt 1140
                                                                                                                                                                                                                                                                                                                                                                                             TGAACCTAAACATAGAAATTGCCTGACGAACTCCTTGATTTTAGCCTTCTCTGTTCATTT 1421
                                                                                                                                                                                                                                        ACGTACCAGGTGGAGCACCCAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCA 1121
                                                                                                                                                                                                        1002 GATGGGACCTACCAGGGCTGGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATAT 1061
                                                                                                                                                                                                                        840
                                                                                                                                                     721 aaggataagcagccaatggatgccaaggagttcgaacctaaagacgtattgcccaatggg 780
                                                                                                                                                                                                                                                      900
                                                   761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Human; antiarthritic; antirheumatic; antiprolliferative; vasotropic;
                                                                                                                                                                                                                 GTTTTGGACCAACAAGTGCCTCCTTTGGTGAAGGTGACAACATCATGTGACCTCTTCAGTG
                                                                                                                        ACCACTCTACGGTGTCGGGCCTTGAACTACTACCCCCAGAACATCACCATGAAGTGGCTG
                                                                                                                                                                                                                                               ccgtctggcaccctagtcattggagtcatcagtggaattgctgtttttgtcgtcatcttg
        atcctgggctgtgaaatgcaagaagacaacagtaccgagggctactggaagtacgggtat
                                                   AGGCCTGCCCCACCAAGCTGGAAAGGCACAAGATTCGGGCCAGGCAGAACAGG
                                                                                                 gcctacctggagagggactgccctgcacagctgcagcagttgctggagctggagagag
                      642 GATGGGCAGGACCACCTTGAATTCTGCCCTGACACACTGGATTGGAGGCAGCAGCAGAACCC
                                                                                  GCCTACCTGGAGAGGGACTGCCCTGCACAGCTGCAGCAGTTGCTGGAGCTGGGGGAGGT
Human polynucleotide SEQ ID NO 105.
                                                                                                                                                                                                                                                                                                                                                                                                                                   CCTCAAAAAGATTTCCCCA 1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAI63897 standard; cDNA; 596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             22-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AA163897
                                                                                                                                                                                                                                                                                                                                                                                                           1141
                                                                 481
                                                                                  762
                                                                                                541
                                                                                                               822
                                                                                                                              601
                                                                                                                                             882
                                                                                                                                                                           942
                                                                                                                                                                                                                        781
                                                                                                                                                                                                                                       1062
                                                                                                                                                                                                                                                      841
                                                                                                                                                                                                                                                                     1122
                                                                                                                                                                                                                                                                                   901
                                                                                                                                                                                                                                                                                                   1182
                                                                                                                                                                                                                                                                                                                                 1242
                                                                                                                                                                                                                                                                                                                                               1021
                                                                                                                                                                                                                                                                                                                                                               1302
                                                                                                                                                                                                                                                                                                                                                                             1081
                                                                                                                                                                                                                                                                                                                                                                                             1362
                                                                                                                                                                                                                                                                                                                                                                                                                          1422
                                                                                                                                                                                                                                                                                                                                                                                                                                         1201
       361
                                     421
                                                   702
                                                                                                                                                                                                                                                                                                                  961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AA163897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                        g
                                                                                                                                                                                     qq
                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                03
                                                                                                                                                                                                                                                                                 qq
                                                                                                                                                                                                                                                                                              òγ
                                                                                                                                                                                                                                                                                                              qq
                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                            Dβ
                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                            qq
                                                                                                                                                                                                                                                                                                                                                                                            Qγ
                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                           Ω
                                                                                                                                           οχ
                                                                                                                                                                       οy
                                                                                                                                                                                                       QΥ
                                                                                                                                                                                                                                     Ω
       셤
                                  g
                                                   ò
                                                              Q
                                                                            ò
                                                                                                            ò
                      à
```

```
MR Antiplementory; antillografic antiplements; antiplement
```

```
2000US-0249265.
2000US-0249297.
2000US-0249299.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2000US-0249300.
2000US-0250160.
2000US-0250391.
                                                                                                                                                                                                                                                              2000US-0239935.
2000US-0239937.
2000US-0241221.
2000US-0241785.
2000US-0241786.
2000US-0241808.
2000US-0241809.
                                                                                                                                                                                                                                                                                                                                                                                                      20000S-0241826.
2000US-0244617.
2000US-0246474.
2000US-0246475.
2000US-0246477.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20000S-0246525.
20000S-0246526.
20000S-0246527.
20000S-0246527.
20000S-0246528.
20000S-0246609.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2000us-0251868.
2000us-0251869.
2000us-0251989.
                                                                                                                                                                                  20000S-0236802.
20000S-0237037.
20000S-0237038.
20000S-0237038.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2000US-0249213.
2000US-0249214.
                                            2000US-0234998,
2000US-0235484,
2000US-0235834,
2000US-0235836,
                                                                                                          2000US-0236327.
2000US-0236367.
2000US-0236368.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2000US-0249208.
2000US-0249209.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2000US-0249210.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2000US-0249211.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2000US-0249212.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2000US-0249217.
2000US-0249218.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2000US-0249244.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2000US-0249245.
2000US-0249264.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2000US-0251030.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2000US-0251988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0000S-0256719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2000US-0249215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2000US-0246523.
2000US-0246524.
                                                                                                                                                       2000US-0236369
2000US-0236370
                                                                                                                                                                                                                                                 2000US-0237040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2000US-0246478
21-SEP-2000; 225-SEP-2000; 225-SEP-2000; 227-SEP-2000; 227-SEP-2000; 227-SEP-2000; 227-SEP-2000; 229-SEP-2000; 220-OCT-2000; 220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      17-NOV-2000;
01-DEC-2000;
01-DEC-2000;
05-DEC-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 08-DEC-2000;
08-DEC-2000;
08-DEC-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            17-NOV-2000;
17-NOV-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              17-NOV-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             17-NOV-2000;
17-NOV-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17-NOV-2000;
```

1; TGGGCTGTGAAATGCAAGAACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATG 645 525 582 166 CCCGCCCCCAAAAGAAGGGGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGG 225 285 345 192 405 252 465 371 226 GCCCGCGAGCCAGGCCGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGG 286 GGCGCTTGCTGCGTTCACACTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACC 406 AIGAIGAGAGTCGCCGTGTGGAGCCCCGAACTCCATGGGTITCCAGTAGAATITCAAGCC AGATGTGGCTGCAGCTGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACT TCTGGACTATTATGGAAAATCACAACCACAGGAAGTCCCACACCCTGCAGGTCATCC 253 466 313 526 372 586 432 qq 요 Ω 임 Ω g δ g ò g δ g δ δ

us-09-497-957-12.rng

4001

4121

4361

688

628

4421

748

Q

à g ò

```
gccgtgtggagccccgaactccatgggtttccagtagaatttcaagccagatgtggctgc 3941
                                                                                                   4122 ggagcagggaagagggaaggaatttgcttcctgagatcatttggtccttggggatggtgg 4181
                                                                                                                                                                                                                                                                                         4182 aaatagggacctattcctttggttgcagttaacaaggctggggatttttccagagtccca 4241
                                                                                                                                                                                                                                                                                                                                      Wolff RK;
                                            4062 cagagettttcatetttcatgeatettgaaggaaacagetggaagtetgaggtettgtg
                           AGCTGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTA
                                                                                                                                                                                                                                                                                                                       CACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAGGGCTACTG
                                                                                                                                                                                                                                                                                                                                                                                GAAGTACGGGTATGATGGCCAGGACCACCTTGAATTCTGCCCTGACACACTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                4362 agcagcagaacccagggcctggcccaccaagctggagtgggaaaggcacaagattcgggc
                                                                                                                                                                                                                                                                 -----GAGTCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                        AGCAGCAGAACCCAGGGCCTGGCCCACCAAGCTGGAGTGGGAAAAGGCACAAGATTCGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   749 CAGGCAGAACAGGGCCTACCTGGAGAGGGACTGCCCTGCACAGGTGCAGCTGCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Tsuchihashi Z,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Human hereditary hemochromatosis 24d1/2 mutation DNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HH; hereditary hemochromatosis; chelation agent; T-cell differentiation factor; iron overload; ds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ruddy D,
                                                                                   TGGAAAATCACAACCACAGCAAG-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCTGGGGAGAGGTGTTTTGGACCAACAAG 837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gnirke A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAC68428 standard; DNA; 10825 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    97US-0834497.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                96US-0630912.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               96US-0632673
96US-0652265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (BIRA ) BIO-RAD LAB INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Drayna DT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  04-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                04-APR-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            16-APR-1996;
23-MAY-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US6140305-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     31-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Thomas WJ,
Feder JN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAC68428;
                                                                                                               4002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           608
                                                                                   538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4422
3882
                          478
                                                                                                                                            561
                                                                                                                                                                                                    561
                                                                                                                                                                                                                                                              561
                                                                                                                                                                                                                                                                                                                       569
                                                                                                                                                                                                                                                                                                                                                                                629
                                                                                                                                                                                                                                                                                                                                                                                                                                         689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAC68428
                                                    qq
                                                                                                            Q
                                                                                                                                                                       pp
                                                                                                                                                                                                                               Pp
                                                                                                                                                                                                                                                                                                                                                   원
                                                                                                                                                                                                                                                                                                                                                                                                          Db
                       δλ
                                                                                   δ
                                                                                                                                            ŏ
                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                              ŏ
                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                        δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The present invention relates to hereditary hemochromatosis gene products. These proteins may be used to treat a patient diagnosed as having human hemochromatosis disease. It is also useful as a metal chelation agent or as a T-cell differentiation factor, and for alleviating iron overload. They may also be used in protein replacement therapy for individuals having a defective human hemochromatosis gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Wolff RK;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3762 gttcacactcttgcactacctcttcatgggtgcctcagagcaggaccttggtctttcct 3821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   705
                    GCCGTGTGGGGCCCCGGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGC 477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTTCACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCT 357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        New hereditary hemochromatosis gene products or polypeptides, useful for treating hereditary hemochromatosis in a patient, and as a metal chelation agent alleviating iron overload -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
       GGCAGGACCACCTTGAATTCTGCCCTGACACTGGATTGGAGGAGCAGCAGAACCCAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 22.3%; Score 321; DB 22; Length 10825; 72.1%; Pred. No. 2.2e-82; ive 0; Mismatches 0; Indels 209;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Tsuchihashi 2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 10825 BP; 2998 A; 2252 C; 2649 G; 2926 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                             Human hereditary hemochromatosis 24d2 mutation DNA
                                                                                                                                                                                                                                                                                   4; hereditary hemochromatosis; chelation agent;
cell differentiation factor; iron overload; ds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gnirke A, Ruddy D,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        English.
                                                                                                                                                                  AAC68427 standard; DNA; 10825 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                96US-0630912.
96US-0632673.
96US-0652265.
                                                                                                                                                                                                                                                                                                                                                                                                                       97US-0834497
                                                                                                                                                                                                                           (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Disclosure; Fig 3; 108pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (BIRA ) BIO-RAD LAB INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Drayna DT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2001-006341/01.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                P-PSDB; AAB36871
                                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                     04-APR-1997;
                                                                                                                                                                                                                           21-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 16-APR-1996;
23-MAY-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 04-APR-1996;
                                                                                                                                                                                                                                                                                                                                                          US6140305-A.
                                                                                                                                                                                                                                                                                                                                                                                        31-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              540;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Thomas WJ,
                                                                                                                                                                                                AAC68427;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Feder JN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Loca
Matches
       646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                418
```

QQ ò g δ BP.

```
4482 gctggggagaggtgttttggaccaacaag 4510
                                                                AAT96690 standard; DNA; 10825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           04-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO9738137-A1
                                                                                                                                                                                                              Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     23-MAY-1996;
                                                                                                                    14-APR-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              16-APR-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  04-APR-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   16-OCT-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           variation
                                                                                          AAT96690;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mutation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             mutation
                                                                                                                                                                                                                                                                                           intron
                                                                                                                                                                                                                                                                                                                                 intron
                                                                                                                                                                                                                                                                                                                                                                      intron
                                                                                                                                                                                                                                                                                                                                                                                                              intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                   intron
                                                                                                                                                                                                                                        Key
 셤
                                                                               ï
                                                                                                                                products. These proteins may be used to treat a patient diagnosed as having human hemochromatosis disease. It is also useful as a metal chelation agent or as a T-cell differentiation factor, and for alleviating iron overload. They may also be used in protein replacement therapy for individuals having a defective human hemochromatosis gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4421
                                                                                                                                                                                                                                                                                                                                                                                                                                     3882 geogitgiggageeceegaaeteeatgggitteeagtagaatiteaageeagaigtggeige 3941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CAGGCAGAACAGGCCTACCTGGAGAGACTGCCCTGCACAGCTGCAGCAGTTGCTGGA 808
                                                                                                                                                                                                                                                                                                                                                         3762 gttcacactctctgcactacctcttcatggtgcctcagagcaggaccttggtcttcct 3821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4122 ggagcagggaagaggaaggaatttgcttcctgagatcatttggtccttggggatggtgg 4181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4182 aaatagggacctattcctttggttgcagttaacaaggctggggatttttccagagtccca 4241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tggaaaatcacaaccacagcaagggtatgtggagaggggcctcaccttcctgaggttgt 4061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          568
                                                                                                                                                                                                                                                                                                                                                                                                             477
                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGCTGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTA 537
                                                                                                                                                                                                                                                                                                       298 GITCACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCT 357
                                                                                                                                                                                                                                                                               Gaps
                                       New hereditary hemochromatosis gene products or polypeptides, useful for treating hereditary hemochromatosis in a patient, and as a metal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             629 GAAGTACGGGTATGATGGCCAGGACCACCTTGAATTCTGCCCTGACACTGGATTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gaagtacgggtatgatggggcaggaccaccttgaattctgccctgacacactggattggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGCAGCAGAACCCAGGGCCTGGCCCAAGCTGGAGTGGGAAAGGCACAAGATTCGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4062 cagagetttteatetttteatgeatettgaaggaaacagetggaagtetgaggtettgtg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----GAGTCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             569 CACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAGGGCTACTG
                                                                                                                                                                                                                                                                                                                                                                                                              GCCGTGTGGAGCCCCGGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGC
                                                                                                                       The present invention relates to hereditary hemochromatosis gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels 209;
                                                                                                                                                                                                                                                   Length 10825;
                                                                                                                                                                                                             Sequence 10825 BP; 2999 A; 2252 C; 2648 G; 2926 T; 0 other;
                                                                                                                                                                                                                                                   Score 321; DB 22;
Pred. No. 2.2e-82;
0; Mismatches 0;
                                                                   chelation agent alleviating iron overload
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       809 GCTGGGGAGAGGTGTTTGGACCAACAAG 837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGGAAAATCACAACCACAGCAAG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Disclosure; Fig 3; 108pp; English.
                                                                                                                                                                                                                                                     22.3%;
72.1%;
                                                                                                                                                                                                                                                                               Matches 540; Conservative
                                                                                                                                                                                                                                                                  Similarity
  WPI; 2001-006341/01
               P-PSDB; AAB36872
                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                     Local
                                                                                                                                                                                                                                                                                                                                                                                                              418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           561
```

g

Qy Dp ò

a

ô

q ò g ò

ò

g

g

ò

οp

ò

g ò g ò

ογ

g

õ

```
Hereditary haemochromatosis gene and variants - useful for diagnosis and treatment of hereditary haemochromatosis disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     i
"G to A substitution (24d1 mutation
associated with HH), results in Cys to
Tyr substitution"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C to G substitution (24d2 mutation) results in His to Asp substitution"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 h
"A to T substitution (24d7 variant)
results in Ser to Cys substitution"
                                                                Hereditary haemochromatosis; metal toxicity; diagnosis; gene therapy; prenatal screening; human; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Thomas WJ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ruddy D,
                                                                                                                                                                                       /*tag= a
/note= "contains introns"
                                                                                                                                                     Location/Qualiflers
361..7147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Disclosure; Fig 3; 115pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Drayna DT, Feder JN, Gnirke A,
Tsuchihashi 2, Wolff RK;
                                  Hereditary haemochromatosis gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (MERC-) MERCATOR GENETICS INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               96US-0652265.
96US-0630912.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             97WO-US06254.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 96US-0632673.
                                                                                                                                                                                                                                                                                                                                                                                                                                                   /*tag= f
/number= 5
                                                                                                                                                                                                                                                                                                                                                                           5882..6039
                                                                                                                                                                                                                                                                                                                                                                                                                 /number= 4
6154..7106
                                                                                                                                                                                                                                                                                                                            4511..5605
(first entry)
                                                                                                                                                                                                                                                                          4026..4234
                                                                                                                                                                                                                                                                                              /*tag= c
                                                                                                                                                                                                                                                                                                                                                                                                 ø
                                                                                                                                                                                                                      ..3761
                                                                                                                                                                                                                                          /*tag= b
                                                                                                                                                                                                                                                                                                                                                /*tag= d
                                                                                                                                                                                                                                                        /number=
                                                                                                                                                                                                                                                                                                                                                               'number=
                                                                                                                                                                                                                                                                                                              'number=
                                                                                                                                                                                                                                                                                                                                                                                                 /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /*tag=
/note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /*tag=
/note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 1997-512743/47.
P-PSDB; AAW36499.
```

the allelic association was no longer observed. A single mutation disease. This comprises a G to A substitution that is present in disease. This comprises a G to A substitution that is present in g6% of affected chromosomes and in 4% of unaffected chromosomes. Tr results in a Cys to Tyr substitution in the encoded protein (see AAW36499) at a critical disulphide bridge important for secondary structure. The following are claimed: the HH genomic DNA (1), a 1437 bp cDNA sequence (1a) (see AAP36691) and their Add). 24d2 and 24d7, or a peptide product chosen from the HH gene product, its variants cells; a peptide product chosen from the HH gene product, its variants cells; a peptide product chosen from the HH gene product, its variants cells; an antibody produced using the peptide; a method cestumine the presence or absence of the common HH gene mutation; an annimal model for the HH disease; metal chelation agents, T-cell differentiation factors and therapeutic agents for the mitigation of injury due to oxidative process in vivo or the mitigation of injury due to oxidative process in vivo or the rappeutic agents for activity in connection with HH disease; an antisense oligonucleotide directed against a transcriptional therapeutic agents for activity in connection with HH disease; and therapeutic agents for activity in connection with HH disease; or product of a nucleic acid sequence as above; and oligonucleotide directed against a transcriptional corpustors of product. The invention also relates to methods for screening diagnosis, and therapeutics, and therapeutics, and small molecule therapeutics. This genomic DNA sequence corresponds to the human gene whose mutated form is associated with hereditary hemconfromatosis (HH). To identify this novel gene, allelic association patterns were determined between known markers and the HH locus in the HLA region of Chromosome 6. A physical clone coverage was then generated extending from D65265, which is a marker that is centromeric of HLA-A, in a telomeric direction through D65276, a marker at which the allelic association was no longer observed. A single mutation therapeutics XXCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCXX

Sequence 10825 BP; 2996 A; 2254 C; 2648 G; 2927 T; 0 other;

1; 298 GTTCACACTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCT 357 477 537 209; Gaps TGTTTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATGAGAGTC GCCGTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGC AGCTGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTA tggaaaatcacaaccacaggaaagggtatgtggagagggggcctcaccttcctgaggttgt cagagcttttcatctttcatgcatcttgaaggaaacagctggaagtctgaggtcttgtg ggagcagggaagggaaggaatttgcttcctgagatcatttggtccttggggatggtgg ----GAGTCCCA 18; Length 10825; Indels 1; Score 319.4; DB 1: Pred. No. 6.4e-82; ); Mismatches 1 TGGAAAATCACAACCACAGCAAG----. 0 22.2%; 72.0%; Conservative Best Local Similarity Matches 539; Conserv Query Match 3942 3762 3822 418 3882 4002 4062 4122 358 478 538 561 561 561 g δ g g g ò ò ò Ω g ò g ò g ô

4301 4421 alleviating iron overload. They may also be used in protein replacement therapy for individuals having a defective human hemochromatosis gene. 4182 aaatagggacctattcctttggttgcagttaacaaggctggggatttttccagagtccca 4241 4481 688 748 Wolff RK; The present invention relates to hereditary hemochromatosis gene products. These proteins may be used to treat a patient diagnosed as having human hemochromatosis disease. It is also useful as a metal chelation agent or as a T-cell differentiation factor, and for or polypeptides, useful patient, and as a metal CACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAGGGCTACTG 4362 agcagcagaacccagggcctggcccaccaagctggagtgggaaaggcacaagattcgggc GAAGTACGGGTATGATGGCCAGGACCACCTTGAATTCTGCCCTGACACACTGGATTGGAG 689 AGCAGCAGAACCCAGGGCCTGGCCCACCAAGCTGGAAAGGCAAAAGATTCGGGC 749 CAGGCAGAACAGGGCCTACCTGGAGGGACTGCCCTGCACAGCTGCAGTTGCTGGA Tsuchihashi Z, Sequence 10825 BP; 2998 A; 2253 C; 2648 G; 2926 T; 0 other; I-cell differentiation factor; iron overload; ds hereditary hemochromatosis; chelation agent; New hereditary hemochromatosis gene products for treating hereditary hemochromatosis in a chelation agent alleviating iron overload -Ruddy D, Human hereditary hemochromatosis DNA. GCTGGGGAGAGGTGTTTTGGACCAACAAG Gnirke A, Disclosure; Fig 3; 108pp; English. BP AAC68425 standard; DNA; 10825 96US-0632673. 96US-0632673. 96US-0652265. 97US-0834497 (first entry) (BIRA ) BIO-RAD LAB INC Drayna DT, 2001-006341/01. P-PSDB; AAB36869 Homo sapiens. 04-APR-1997; 21-FEB-2001 16-APR-1996; 23-MAY-1996; US6140305-A. 04-APR-1996; 31-OCT-2000 Thomas WJ, AAC68425; Feder JN; 269 809 AAC68425 ÓΥ q qq g ò Qγ g δ ð g

```
31-0CT-2000
                                                                     Thomas WJ,
                                                                             Feder JN;
                                                                                                                                                                                                                                                                                                                                                                       4002
                                                                                                                                                                                                                                                                                                                                                                                                  4062
                                                                                                                                                                                                                                                                                                                                                                                                                             4122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               629
                                                                                                                                                                                                                                                                                                                  3882
                                                                                                                                                                                                                                                                                                                                                                                                                                          561
                                                                                                                                                                                                                                                                                                     418
                                                                                                                                                                                                                                                                                                                                478
                                                                                                                                                                                                                                                                                                                                                          538
                                                                                                                                                                                                                                                                                                                                                                                                               561
                                                                                                                                                                                                                                                 298
                                                                                                                                                                                                                                                                                                                                                                                     561
                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                 qq
                                                                                                                                                                                                                                                                                                                                                                                                               οy
                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 qq
                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                δý
                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                     ò
     ŏ
                                                                                                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                                                                                                      Q
          ä
                                                                                                                                                                                                                                                        4301
                                                                                                                                                                                                                                                                                                             4421
                                                                                                       4182 aaatagggacctattcctttggttgcagttaacaaggctggggatttttccagagtccca 4241
                                                                                                                                                                                                                                                                                  4361
                                                                                                                                                                                                                                                                                                                                 1002 tggaaaatcacaaccacagcaagggtatgtggagaggggcctcaccttcctgaggttgt 4061
                                                                                                                                                                         cagagettttcatetttcatgeatettgaaggaaacagetggaagtetgaggtettgtg 4121
                                                                                                                                                                                                   ggagcagggaagaggaaggaatttgcttcctgagatcatttggtccttggggatggtgg 4181
                                                                                                                                                                                                                                            628
                                688
                                                                                                                                                                                                                                                                                               748
                                                                                                                                                                                                                                                                                                                          808
                                                   TGTTTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATGATGAGAGTC 417
                                                                             GCCGTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGC 477
                        GTTCACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCT 357
           Gaps
                                                                                                                                                                                                                                                                                               CACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAGGGCTACTG
                                                                                                                                                                                                                                                  629 GAAGTACGGGTATGATGGGCAGGACCACCTTGAATTCTGCCCTGACACACTGGATTGGAG
                                                                                                                                                                                                                  -GAGTCCCA
                                                                                                                                                                                                                                                                                                                          CAGGCAGAACAGGGCCTACCTGGAGAGGGACTGCCCTGCACAGCTGCAGGTTGCTGGA
           209;
            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                          Human hereditary hemochromatosis 24d1 mutation DNA
6.4e-82;
1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        HH; hereditary hemochromatosis; chelation agent;
T-cell differentiation factor; iron overload; ds
     Pred. No. 6.46; Mismatches
                                                                                                                                                                                                                                                                                                                                                             GCTGGGGAGAGGTGTTTTGGACCAACAAG 837
                                                                                                                                                                                                                                                                                                                                                                                                    BP
                                                                                                                                   TGGAAAATCACAACCACAGCAAG----
            ö
                                                                                                                                                                                                                                                                                                                                                                                                    AAC68426 standard; DNA; 10825
     72.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
            Conservative
     Best Local Similarity
Matches 539; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US614,0305-A.
                                                                                                                                                                                                                                                                                                                                                                                                                              21-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                 AAC68426;
                                                                                                                                                                                                                                                                                                                                                                                        13
                                                                                                                                                                                                                                                                                                                                                      809
                                                                                                                                                                                                                                                                                                                                                                   4482
                                                                                                                                                                            4062
                                                                                                                                                                                                     4122
                                                                                                                                                                                                                                                                                     1302
                                                                                                                                                                                                                                                                                                                            749
                                       3762
                                                                  3822
                                                                                            3882
                                                                                                                      3942
                                                                                                         478
                                                                                                                                   538
                                                                                                                                                                                        561
                                                                                                                                                                                                                  561
                          298
                                                    358
                                                                               418
                                                                                                                                                              561
                                                                                                                                                                                                                                                                                                                                                                                             AAC68426
ID AAC6
                                                                                                                                                                                                                                                                                                                                                                                                            q
                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                       õ
                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                        Q
                                                                                                                                                                                                    q
                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                       ογ
                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                              ò
                                      g
                                                     à
                                                                 g
                                                                              ŏ
                                                                                          g
                                                                                                         ò
                                                                                                                      g
                                                                                                                                   ολ
                                                                                                                                               g
                                                                                                                                                             õ
                                                                                                                                                                                        ò
                          ò
```

```
ï
                                                                                                                                                                                                                                                                                                                                                                                                                                              The present invention relates to hereditary hemochromatosis gene products. These proteins may be used to treat a patient diagnosed as having human hemochromatosis disease. It is also useful as a metal chelation agent or as a T-cell differentiation factor, and for alleviating iron overload. They may also be used in protein replacement therapy for individuals having a defective human hemochromatosis gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAGGGCTACTG 628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCGTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGC 477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4182 aaatagggacctattcctttggttgcagttaacaaggctggggatttttccagagtccca 4241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3822 tgtttgaagctttgggctacgtggatgaccagctgttcgtgttctatgatcatgatcagagdtc 3881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3942 agctgagtcagagtctgaaagggtgggatcacatgttcactgttgacttctggactata 4001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAAGTACGGGTATGATGGGCAGGACCACCTTGAATTCTGCCCTGACACACTGGATTGGAG 688
                                                                                                                                                                           RK;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                              or polypeptides, useful patient, and as a metal
                                                                                                                                                                           Wolff
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cagagottttcatctttcatgcatcttgaaggaaacagctggaagtctgaggtcttgtg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ggagcagggaagggaaggaatttgcttcctgagatcatttggtccttggggatggtgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3762 gitcacactetetgeactacetetteatgggtgeeteagageaggacettggtettteet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       358 TGTTTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATGATGAGAGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGCTGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----GAGTCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GIICACACICTCIGCACIACCICITCAIGGGIGCCICAGAGCAGGACCIIGGICIIICCI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 10825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         209;
                                                                                                                                                                             , 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 10825 BP; 2999 A; 2253 C; 2647 G; 2926 T; 0 other.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1; Indels
                                                                                                                                                                           Tsuchihashi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 319.4; DB 2.
Pred. No. 6.4e-82;
0; Mismatches 1
                                                                                                                                                                                                                                                                                                                New hereditary hemochromatosis gene products for treating hereditary hemochromatosis in a chelation agent alleviating iron overload -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGGAAAATCACAACCACAGCAAG----------
                                                                                                                                                                                à
                                                                                                                                                                                Ruddy
                                                                                                                                                                                  Ą,
                                                                                                                                                                                                                                                                                                                                                                                                             Disclosure; Fig 3; 108pp; English.
                                                                                                                                                                                  Gnirke
                                        96US-0630912.
96US-0632673.
96US-0652265.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 22.2%;
Best Local Similarity 72.0%;
Matches 539; Conservative (
97US-0834497
                                                                                                                                  (BIRA ) BIO-RAD LAB INC
                                                                                                                                                                                  Drayna DT,
                                                                                                                                                                                                                                                  WPI; 2001-006341/01
                                                                                                                                                                                                                                                                          P-PSDB; AAB36870.
                                          04-APR-1996;
16-APR-1996;
23-MAY-1996;
    04-APR-1997;
```

```
Best Local
                                                                                                                                                                                                                                                                                                                                                           4952
                                                                                                                                                                                                                                                                             418
                                                                                                                                                                                                                                                                                       4772
                                                                                                                                                                                                                                                                                                   478
                                                                                                                                                                                                                                                                                                              4832
                                                                                                                                                                                                                                                                                                                          538
                                                                                                                                                                                                                                                                                                                                     4892
                                                                                                                                                                                                                                                                                                                                                 561
                                                                                                                                                                                                                                                                                                                                                                                  5012
                                                                                                                                                                                                                                                                                                                                                                       561
                                                                                                                                                                                                                                          Dp
                                                                                                                                                                                                                                                                                                                                     QQ
g
                                                                                                                                                                                                                                                                                       qq
                                                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                QΥ
                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                             δŻ
                                                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                                                          Qγ
                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                       ò
                                             4302 gaagtacgggtatgatgggcaggaccaccttgaattctgccctgacacactggattggag
                       CAGGCAGAACAGGGCCTACCTGGAGAGGGACTGCCCTGCACAGCTGCAGCAGTTGCTGGA
                 AGCAGCAGAACCCAGGGCCTGGCCCACCAAGCTGGAGTGGGAAAGGCACAAGATTCGGGC
Human, histocompatibility iron loading protein; HFE protein, major histocompatibility complex; non-classical class I gene; chromosome 6p; iron disorder; haemochromatosis; ss.
                                                                                                                                     Genomic DNA of a histocompatibility iron loading (HFE) gene.
                                                                  809 GCTGGGGAGAGGTGTTTTGGACCAACAAG 837
                                                                                                                                                                                  Location/Qualifiers
                                                                                                   AAA96794 standard; cDNA; 12146 BP
                                                                                                                                                                                                                                                                                                                                                                                       /*tag= 1
/number= 6
10206..10637
/*tag= m
                                                                                                                                                                                                                                                                                                                                                                            /number= 6
9051..10205
                                                                                                                                                                                                                                                                                                                                                           /number= 5
7995..9050
/*tag= k
                                                                                                                                                                                                                                                                                                                         /number= 4
6928..7041
/*tag= i
                                                                                                                                                                                                                                                                                                                                          /number= 5
7042..7994
/*tag= j
                                                                                                                                                                                                                    /number= 1
4652..4915
                                                                                                                                                                                                                                                                  /*tag= e
/number= 3
                                                                                                                                                                                                                                                                                             6494..6769
                                                                                                                          (first entry)
                                                                                                                                                                                                                                                            5125..5400
                                                                                                                                                                                                                                                                            5401..6493
                                                                                                                                                                                                                                                                                  /*tag= f
/number= 3
                                                                                                                                                                                                         1325..4651
                                                                                                                                                                                                                                          4916..5124
                                                                                                                                                                                                                                                                                                              6770..6927
                                                                                                                                                                                               /*tag= a
                                                                                                                                                                                                               Ω
                                                                                                                                                                                                                               /*tag= c
                                                                                                                                                                                                                                                /*tag= d
                                                                                                                                                                                                                                                                                                    Б
                                                                                                                                                                                                                                                                                                                    Ч
                                                                                                                                                                                                    /number=
                                                                                                                                                                                                                                     /number=
                                                                                                                                                                                                                                                      /number=
                                                                                                                                                                                                                                                                                                         /number=
                                                                                                                                                                                                                                                                                                    /*tag=
                                                                                                                                                                                                                                                                                                                     /*tag=
                                                                                                                                                                                                                /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                     WO200058515-A1
                                                                                                                                                                        Homo sapiens
                                                                                                                          19-FEB-2001
                                                                                                              AAA96794;
                                                                                                                                                                                                         intron
                                                                                                                                                                                                                                                                                                              intron
                                                                                                                                                                                                                                                                                                                                                 intron
                                                                                                                                                                                                                                                                                                                                                                                   intron
                                                                                                                                                                                                                                           intron
                                                                                                                                                                                                                                                                             intron
                689
                                       749 (
                                                                                                                                                                                                                                                                                                                                                                                                    exon
                                                                                                                                                                                   Key
exon
                                                                                                                                                                                                                                                            exon
                                                                                                                                                                                                                                                                                                                                exon
                                                                                                                                                                                                                                                                                                                                                                  exon
                                                                                                                                                                                                                                                                                              exon
                                                                                                                                                                                                                           exon
                                                                                                   δŏ
                                                 엄
                                                            à
                                                                      g
```

```
The present sequence represents the human histocompatibility iron loading (HEE) gene. The HFE gene is a major histocompatibility (MHC) non-classical class I gene located on chromosome 6p. Mutations in the gene lead to iron disorders. The specification describes a method for diagnosing an iron disorder or a genetic susceptibility to develop the disorder in a mammal. The method comprises determining the presence of a mutation in exon 2 or an intron of a HFE gene or protein. The mutation is not a C to G missense mutation at nucleotide 187 of the sequence given in A96769 (Genbank Accession number 16019). The presence of the mutation indicates the disorder or the genetic susceptibility to the disorder. The method is used to diagnose an iron disorder.
                                                                                                                                                                                                                                                                                                           Diagnosing an iron disorder e.g. hemochromatosis or a genetic susceptibility to develop it, by determining the presence of a mutation in exon 2 or an intron of a histocompatibility iron loading nucleic acid -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ggagcagggaagggaaggaatttgcttcctgagatcatttggtccttggggatggtgg 5071
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               358 TGTTTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATGATGAGGTC 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             569 CACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAGGGCTACTG 628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    298 GIICACACICTCIGCACIACCICITCAIGGGIGCCICAGAGCAGGACCIIGGICITICCI 357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1; Indels 209; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cagagettttcatettttcatgeatettgaaggaaacagetggaagtetgaggtettgtg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCCGTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGCTGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----GAGTCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5072 aaatagggacctattcctttggttgcagttaacaaggctggggatttttccagagtccca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                e.g. haemochromatosis, or a genetic susceptibility to develop it.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 12146;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 12146 BP; 3383 A; 2474 C; 2911 G; 3378 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 319.4; DB 21;
Pred. No. 6.8e-82;
0; Mismatches 1;
                                                                                                                                                                                          Barton JC;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGGAAAATCACAACCACAGCAAG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Example 1; Page 21-28; 55pp; English
                                                                                                                                                                                      Sawada-Hirai R,
                                                                                                                           (BILL-) BILLUPS-ROTHENBERG INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      22.2%;
72.0%;
24-MAR-2000; 2000WO-US07982
                                                               99US-0277457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches 539; Conservative
                                                                                                                                                                                                                                                  WPI; 2000-647244/62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                          Rothenberg BE,
                                                               26-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
```

ij

Wed

```
The present invention describes hereditary haemochromatosis gene products from the human haemochromatosis gene. The present sequence represents a hereditary haemochromatosis upong from an hereditary haemochromatosis with a feeted individual. Also described is a method to determine the presence or absence of the common hereditary haemochromatosis (HFE) gene mutation in an individual comprising:

(a) providing DNA or RNA from the individual; and (b) assessing the DNA or RNA for the presence or absence of the haplotype or genotype indicates the likely presence of the HFE gene mutation in the genome of the individual. The HFE gene sequences from the present invention can be used to develop products for use in the diagnosis and treatment of HFE. The present invention also describes BTF genes, which are homologues of the milk protein butyrophilin (BT), and can be used in the production of agonists
                                                                                                                   Bovine butyrophilin; BT; human hereditary haemochromatosis; HFE; diagnosis; iron metabolism; NPT3; NPT4; RORet; BTF1; BTF2; BTF3; BTF4; BTF5; milk protein; lupus; Sjogren's syndrome; hypophosphatemia; type 1 sodium transport gene; ss.
                                                                                                        748
                                               688
                                                                                                                                                              CAGGCAGAACAGGGCCTACCTGGAGGGACTGCCCTGCACAGCTGCAGCTTGCTGGA 808
                                                                                                                                                                                                                                                                                                                                                                                                             Hereditary haemochromatosis subregion from an HH affected individual.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hereditary haemochromatosis gene products - used to develop products for the diagnosis and treatment of hereditary disorders in iron
gaagtacgggtatgatgggcaggaccaccttgaattctgccctgacacactggattggag
                                                                                                     AGCAGCAGAACCCAGGGCCTGGCCCACCAAGCTGGAAAGGCAAAAGGCACAAGATTCGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ΜÜ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Thomas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ruddy
                                                                                                                                                                                                                                    GCTGGGGAGAGGTGTTTTGGACCAACAAG 837
                                                                                                                                                                                                                                                                                                                          BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Lauer PM,
                                                                                                                                                                                                                                                                                                                       AAV57903 standard; DNA; 237326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Claim 1; Fig 9; 209pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                97US-0852495.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      97WO-US17658
                                                                                                                                                                                                                                                                                                                                                                                21-DEC-1998 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RK;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        nal GS,
Wolff H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (PROG-) PROGENTIOR INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 1998-240014/21.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Kronmal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    rsuchibashi Z,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo saptens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO9814466-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    30-SEP-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                07-MAY-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-OCT-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       09-APR-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               metabolism
                                                                                                                                                                                                                                                                                                                                                     AAV57903;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ľ,
                                                                                                                                                                                                                                                                                            RESULT 15
AAV57903/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Feder
                                                                        5192
                                                                                                                                                                                         5312
                                            629
                                                                                                     689
                                                                                                                                                              749
                                                                                                                                                                                                                       809
                                                                                                                                                                                                                                                  5372
               g
                                                                      셤
                                                                                                   ò
                                                                                                                               g
                                                                                                                                                              ò
                                                                                                                                                                                        g
                                                                                                                                                                                                                     ò
```

```
ı,
                                                                                                                                                                                                                                43338 GITCACACICITCEGCACIACCICITCATGGGIGCCICAGAGCAGGACCITGGICIIIIIII 43279
                                                                                                                                                                                                                                                                                                           43278 TGTTTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAGAGTC 43219
                                                                                                                                                                                                                                                                                                                                                                            43159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 42799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 42739
and antagonists of BT function. Also described are: (1) a RoRet gene which can be used to develop products for the study, diagnosis and treatment of lupus and Sjogren's syndrome; and (2) NPT3 and NPT4 genes which are homologues of a type I sodium transport gene, and can similarly be used for hypophosphatemia.
                                                                                                                                                                                                                                                                                                                                                                                                                            43039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     43038 CAGAGCTTTTCATCTTTTCATGCATCTTGAAGGAAACAGCTGGAAGTCTGAGGTCTTGTG 42979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    42919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  42859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    42679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         260
                                                                                                                                                                                                                                                                              417
                                                                                                                                                                                                                                                                                                                                            477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    748
                                                                                                                                                                                                               GTTCACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCT 357
                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                              AGCTGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    42978 GGAGCAGGGAAGAGGAAGTTTGCTTCCTGAGATCATTTGGTCCTTGGGGATGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  42918 AAATAGGGACCTATTCCTTTGGTTGCAGTTAACAAGGCTGGGGGATTTTTCCAGAGTCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAGGGCTACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAAGTACGGGTATGATGGGCAGGACCACCTTGAATTCTGCCCTGACACACTGGATTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CAGGCAGAACAGGCCTACCTGGAGAGCACTGCCCTGCACAGCTGCAGCAGTTGCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   42678 CAGGCAGAACAGGGCCTACCTGGAGAGGGACTGCCCTGCACAGCTGCAGCAGCAGCTGCTGGA
                                                                                                                                                                                                                                                                              TGTTTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATGATGAGAGTC
                                                                                                                                                                                                                                                                                                                                            418 GCCGTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       --GAGTCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGCAGCAGAACCCAGGGCCTGGCCCACCAAGCTGGAGTGGGAAAGGCACAAGATTCGGGC
                                                                                                                                                  Length 237326;
                                                                                                 Sequence 237326 BP; 69596 A; 48904 C; 48217 G; 70609 T; 0 other;
                                                                                                                                             22.2%; Score 319.4; DB 19; 72.0%; Pred. No. 3e-81; ive 0; Mismatches 1; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    42618 GCTGGGGAGAGGTGTTTTGGACCAACAAG 42590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   809 GCTGGGGAGAGGTGTTTTGGACCAACAAG 837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGGAAAATCACAACCACAGCAAG - - - - -
                                                                                                                                                                                 Conservative
                                                                                                                                                                Best Local Similarity
Matches 539; Conserv
                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                           478
                                                                                                                                                                                                               298
                                                                                                                                                                                                                                                                             358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   749
                                                                                                                                                                                                                                                                                                                                                                                                                                       43158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      561
   g
                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                        q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QQ
                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                      q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
```

Search completed: June 19, 2002, 08:53:55 Job time: 8120 sec

Appli Appli Appli Appli Appli Appli Appli Appli Appli Appli

Perfect score:

Sequence:

OM nucleic -

Run on:

Scoring table:

Searched:

Database

```
Sequence 22,
Sequence 4,
Sequence 21,
Sequence 21,
Sequence 21,
                                                                                                                                                                                                        Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                 Sequence Sequence Sequence Sequence
                                                                                                                                                                                                                                                                                                                                                                                     Sequence Sequence Sequence
                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Drayna, Dennis T.
APPLICANT: Feder, John N.
APPLICANT: Gnirke, Andreas
APPLICANT: Gnirke, Andreas
APPLICANT: Ruddy, David
APPLICANT: Tsuchihashi, Zenta
APPLICANT: Wolff, Roger K.
TITLE OF INVENTION: Hereditary Hemochromatosis Gene
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/652,265 FILING DATE: 23-MAY-1996 CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE: Townsend and Townsend and Crew LLP STREEF: Two Embarcadero Center, Eighth Floor CITY: San Francisco STATE: California
US-08-724-394A-21

US-08-652-265-21

US-08-652-265-21

US-08-652-265-21

US-08-614-497A-21

US-08-632-644A-21

US-08-632-673B-13

US-08-632-673B-3

US-08-632-673B-3

US-08-632-673B-3

US-08-632-673B-3

US-08-632-673B-3

US-08-632-673B-3

US-08-632-673B-3

US-08-632-265-20

US-08-632-265-20

US-08-632-265-20

US-08-690-719-5

US-08-890-719-5

US-08-890-719-7

US-08-890-719-7

US-08-890-719-7

US-08-890-719-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE/DOCKET NUMBER: 17957-000500 TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; Sequence 12, Application US/08652265
; Patent No. 6025130
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATTORNEY/AGENT INFORMATION:
NAME: Smith, William M.
REGISTRATION NUMBER: 30,223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             replace(408, "g")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Thomas, Winston J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEPHONE: (415) 576-0200
TELEFAX: (415) 576-0300
INFORMATION FOR SEO ID NO: 12
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH: 1440 base pairs
                                                    nucleic acid
EDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
222..1268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                allele
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             linear
  STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-652-265-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TOPOLOGY:
                                                                                                                                                                             278.4
278.4
278.4
278.4
278.4
173.6
173.6
172.8
166.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURE:
     alignments)
Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Appli
Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Appli
Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                    1440
1 GGGGACACTGGATCACCTAG......TCCTCAAAAAGATTCCCCA 1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 12,
Sequence 12,
Sequence 12,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 10,
Sequence 11,
Sequence 10,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence Sequence Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sednence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Seguence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                        June 19, 2002, 08:40:03; Search time 79.08 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Issued_Patents_NA:*
    /cgn2_6/ptodata//ina/5A_COMB.seq:*
    /cgn2_6/ptodata//ina/5B_COMB.seq:*
    /cgn2_6/ptodata//ina/6A_COMB.seq:*
    /cgn2_6/ptodata//ina/6B_COMB.seq:*
    /cgn2_6/ptodata//ina/PacDCCOMB.seq:*
    /cgn2_6/ptodata//ina/pcTUS_COMB.seq:*
    /cgn2_6/ptodata//ina/pcTUS_COMB.seq:*
                          4.5
Compugen Ltd
                                                                                                                                                                                                     (without a 4472.841 P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-08-652-265-12
US-08-814-497A-12
US-08-814-497A-12
US-08-652-265-10
US-08-652-265-11
US-08-652-265-11
US-08-914-497A-11
US-09-503-444A-11
US-09-503-444A-9
US-09-503-444A-9
US-08-652-265-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                       383533 seqs, 122816752 residues
                          version -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                         nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                             IDENTITY_NUC Gapop 10.0 , Gapext 1.0
                          GenCore
Copyright (c) 1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                         US-09-497-957-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1440
14440
14440
14440
14440
14440
14440
14440
14440
14440
1440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
14440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1440
1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12146
246240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         10825
10825
10825
10825
10825
10825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       10825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.000
0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query
```

1438.4 1438.4 1438.4 1438.4 1438.4 1438.4 1436.8 1436.8

319.4 319.4 319.4 319.4 319.4 319.4

Score

Result No. a

```
APPLICANT: WOLFF, ROGER K.
TITLE OF INVENTION: HEREDI
NUMBER OF SEQUENCES: 76
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STATE: New York COUNTRY: USA ZIP: 10036-2811
                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 2
US-08-834-497A-12
                                                                                                              1021
                                                                                                                                                       1081
                                                                                                                                                                                               1141
                                                                                                                                                                                                                                                           1201
                                                                                                                                                                                                                                                                              1261
                                                                                                                                                                                                                                                                                                  1261
                                                                                                                                                                                                                                                                                                                      1321
                                                                                                                                                                                                                                                                                                                                                                1381
                                                                                                                                                                                                                                                                                                                                                                                   1381
         841
                             901
                                                 901
                                                                      196
                                                                                          961
                                                 g
                                                                    δ
                                                                                        g
                                                                                                              à
                                                                                                                                 g
                                                                                                                                                       δ
                                                                                                                                                                          g
                                                                                                                                                                                              δ
                                                                                                                                                                                                                 qq
                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                              ŏ
                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                                ò
                             οy
                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                           480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     780
                                                                                                                                                                                                                                                           121 CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCCCAAAA 180
                                                                                                                                                                                                                                                                                                                                           360
                                                                                                                                                                                                                                                                                                                                                                                   420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACTAAAGTICIGAAAGACCIGIIGCIIIIICACCAGGAAGIIIIIACIGGGCAICICCIGAG 120
                                                                                                                                                                                                                     CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCCAAAAG 180
                                                                                                                                                                                                                                                                                         AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCCAGGC 240
                                                                                                                                                                                                                                                                                                                                                                                                                   TTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATGAGGTCGCC 420
                                                                                                                                              Gaps
                                                                                                                                                                AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGGCGAGGC
                                                                                                                                                                                                                                                                                                                                                                         CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   481 TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCCTGCACAGCTGCAGCAGTTGCTGGAGCTGGGGGAGGTGTTTTGGACCAACAAGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       841 CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
                                                                                                                                                                                                                                                                                                                                 CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCTGCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                              GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            541 AAAATCACAACCACAGCAAGGAGTCCCACACCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AATTCTGCCCTGACACACTGGATTGGAGAGCAGAACCCAGGGCCTGGCCCACCAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                         Length 1440;
/phenotype= "Hereditary Hemochromatosis
                                                           "Hereditary Hemochromatosis
                                                                                                                                             0; Indels
                                                                                                                         .;
œ
                                                                                                                         DB
                                                                                                                       Query Match 100.0%; Score 1440; Best Local Similarity 100.0%; Pred. No. 0; Matches 1440; Conservative 0; Mismatches
                  /label- 24d2
                           FEATURE:
NAME/KEY: allele
LOCATION: replace(1066, "a")
OTHER INFORMATION: /phenotype=
OTHER INFORMATION: /Tabel= 2401
US-08-652-265-12
INFORMATION:
                    INFORMATION:
OTHER
OTHER
OTHER
                                                                                                                                                                                                                                                                                                                                                                                                                  361
                                                                                                                                                                                                                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             781
                                                                                                                                                                                                         61
                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                         301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     721
                                                                                                                                                                                                                                                                                                                                  241
                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                            qq
                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             염
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                q
                                                                                                                                                                                    g
                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       å
```

```
1020
                                                                                                                                                                                  1020
                                                                                                                                                                                                                            1080
                                                                                                                                                                                                                                                                                                            1140
                                                                                                                                                                                                                                                                                                                                                                                             1200
                                                                                                                                                                                                                                                                                                                                                                                                                                    1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1380
                                                                                                                                                                                                                                                                                                                                                   1081 CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA 1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1201 TAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGCACTACGTCTTAGCTGAAC 1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGCCTGACGAACTCCTTGATTTTAGCCTTCTCTGTTCATTTCCTCAAAAAGATTTCCCCA 1440
                                                        960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1141 TIGGAGTCATCAGTGGAATTGCTGTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAAACTAGAGACTCAAAG
TIGGAGICATCAGIGGAATIGCIGITITITGICGICATCTIGITCATIGGAATITIGITCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAAAAT
                                                          CCTTGAACTACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCAATGG
                                                                                                                                           ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT
                                                                                                                                                               GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTACCAGGTGGAGCACC
                                                                                                                                                                                                                                                                                                              CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGCCTGACGAACTCCTTGATTTTAGCCTTCTCTGTTCATTTCCTCAAAAAGATTTCCCCA
                                                                                                                                                                                                                                                                                                                                HEREDITARY HEMOCHROMATOSIS GENE PRODUCTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2.0b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC Compatible
OPERATING SYSTEM: Windows 95
SOFTWARE: FastSEQ for Windows Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE: Pennie & Edmonds LLP
STREET: 1155 Avenue of the Americas
CITY: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OF DATE: FASTSER CORRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/834,497A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CLASSIFICATION: 514
PRIOR APPLICATION NUMBER: US 08/652,265
APPLING DATE: 23-MAY-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 12, Application US/08834497A Patent No. 6140305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Thomas, Winston J.
APPLICANT: Drayna, Dennis T.
APPLICANT: Feder, John N.
APPLICANT: Gnirke, Andreas
APPLICANT: Ruddy, David
APPLICANT: Tsuchihashi, Zenta
```

```
1081 CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA 1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1201 TAATATTAAGGAAGGCAGGGTTCAAGAGGAGCCATGGGGCACTACGTCTTAGCTGAAC 1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1321 AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAACATAGAAAT 1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGCCTGACGAACTCCTTGATTTTAGCCTTCTCTGTTCATTTCCTCAAAAGATTTCCCCA 1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGCCAGAACAGGGCCTACCTGGAGAGGACT
                                                                                                                                                                                                                                                             AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGGGCAGGACCACCTTG
                                                                                                                                                                                                                                                                                            GCCCTGCACAGCTGCAGCTGCTGGAGCTGGGGGAGGTGTTTTGGACCAACAAGTGC
                                                                                                                                                                                                                                                                                                         CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
                                                                                                                                                                                                                                                                                                                                                     CCTTGAACTACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG
                  GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC
                                                              TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                          AAAATCACAACCACAGGAGGAGTCCCACACCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                                      AATTCTGCCCTGACACACTGGATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                            ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTACCAGGTGGAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TAATATTAAGGAAGGCAGGGTTCAAGAGGAGCCATGGGGCACTACGTCTTAGCTGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGCAAAACTAGAGACTCAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 3
US-09-503-444A-12
; Sequence 12, Application US/09503444A
                                      421
                                                                                  481
                                                                                                          541
                                                                                                                                                                            601
                                                                                                                                                                                                                         661
                                                                                                                                                                                                                                               721
                                                                                                                                                                                                                                                                     721
                                                                                                                                                                                                                                                                                            781
                                                                                                                                                                                                                                                                                                                  781
                                                                                                                                                                                                                                                                                                                                         841
                                                                                                                                                                                                                                                                                                                                                                                                                                961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1381
                                                             481
                                                                                                                                                     601
                                                                                                                                                                                                   661
                                                                                                                                                                                                                                                                                                                                                                                    901
                                                                                                                                                                                                                                                                                                                                                                                                                                                     196
                  421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1381
                                      qq
                                                             δ
                                                                                  g
                                                                                                                              g
                                                                                                                                                                          q
                                                                                                                                                                                                   ά
                                                                                                                                                                                                                       9
                                                                                                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                          ò
                                                                                                                                                      δy
                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                            Qγ
                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACTAAAAGTICIGAAAGACCIGTIGCITITICACCAGGAAGTITITACIGGGCATCICCIGAG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121 CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCCAAAAG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121 CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGGCCCCCCAAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241 CGGCGCTTCTCCTCCTCGTGATGCTTTTGCAGACCGCGTCCTGCAGGGCGCCTTGCTGCTGCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181 AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATGATGAGAGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    241 CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                301 CACACTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 3; Length 1440;
                                                                                                                                                                                                                                                                                                                                                 /phenotype= "Hereditary Hemochromatosis
                                                                                                                                                                                                                                                                                                                                                                                                                   Hemochromatosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ;
                                                                                                                                                                                                                                                                                                                                                                                                     LOCATION: replace(1066, "a")
OTHER INFORMATION: /phenotype- "Hereditary
OTHER INFORMATION: /label- 24d1
                                                                                                  ATTORNEY AGENT INFORMATION:
NAME: POISSANT, Brian M.
REGISTRATION NUMBER: 28,462
REFERENCE/DOCKET NUMBER: 8907-0056-999
TELEPHONE: 650-493-4935
TELEPHONE: 650-493-556
INFORMATION FOR SEQ. ID NO: 12:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100.0%; Score 1440; 100.0%; Pred. No. 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0; Mismatches
CLASSIFICATION: 514
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/632,673
FILING DATE: 16-APR-1996
CLASSIFICATION: 514
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/630,912
FILING DATE: 04-APR-1996
CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                       /label= 24d2
                                                                                                                                                                                                                                                                                                                                 LOCATION: replace(408, "g")
OTHER INFORMATION: /phenotype
OTHER INFORMATION:
OTHER INFORMATION: /label= 24,
FEATURE:
NAME/KEY: allele
                                                                                                                                                                                                                    LENGTH: 1440 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 100.
Best Local Similarity 100.
Matches 1440; Conservative
                                                                                                                                                                                                                                           STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                     222..1268
                                                                                                                                                                                                                                 nucleic acid
                                                                                                                                                                                                                                                                  MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                          NAME/KEY: allele
                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                   LOCATION:
FEATURE:
                                                                                                                                                                                                                                                                                        NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-834-497A-12
                                                                                                                                                                                                                               TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         pp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
```

1020

780 780 840 840 900 900 960

Page

```
1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTACCAGGTGGAGCACC 1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA 1140
                                                                                                                                                                                                                                                                   360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           960
                                                                                                         180
                                                                                                                                                                                                                  300
                                                                                                                                                                                                                                           300
                                                                                                                                                                                                                                                                                               360
                                                                                                                                                                                                                                                                                                                         420
                                                                                                                                                                                                                                                                                                                                                    420
                                                                                                                                                                                                                                                                                                                                                                              480
                                                                                                                                                                                                                                                                                                                                                                                                         480
                                                                                                                                                                                                                                                                                                                                                                                                                                    540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              780
                                                    120
9
                                                 241 CGGCGCTTCTCCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181 AAGCGGAGATTTAACGGGACGTGCGGCCAGAGCTGGGAAATGGCCCGCGAGCCAGGC
                                                                                                                                                                                                                                                                       CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                    GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC
                                                                                                                                                                                                                                                                                                                                                                                           541 AAAATCACAACCACAGCAAGGAGTCCCACACCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AATTCTGCCCTGACACACTGGATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGGCGCTTGCTGCGTT
                                                                                                                                                                                                                                                                                                                            TTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATGATGAGAGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAAATCACAACCACAGCAAGCAGGAGTCCCACCCTGCAGGTCATCCTGGGCTGTAAAATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGCCAGGACCACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCCTGCACAGCTGCAGCAGTTGCTGGAGCTGGGGAGGTGTTTTGGACCAACAAGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCTTGAACTACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCAATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT
                                                                                                                                                               AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGGAAATGGGCCCCGCGAGCCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  961
 Н
                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                                             481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1081
                                                    61
                                                                                                                                                               181
                                                                                                                                                                                                                                                                                                                                                                                                                                    481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    901
                         \vdash
                                                                                                                                                                                                                  241
                                                                                                                                                                                                                                                                       301
                                                                                                                                                                                                                                                                                                                            361
                                                                                                                                                                                                                                                                                                                                                      361
                                                                                                                                                                                                                                                                                                                                                                              421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1021
                                                                                                                                                                                                                                                                                                                                                                                                         421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       961
                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                δλ
                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                         a
                                                    Ωÿ
                                                                            g
                                                                                                         δλ
                                                                                                                                   g
                                                                                                                                                               δy
                                                                                                                                                                                      qq
                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            óλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LOCATION: replace(1066, "a")
CTHER INFORMATION: /phenotype= "Hereditary Hemochromatosis OTHER INFORMATION:
CTHER INFORMATION: /label= 24dl
US-09-503-444A-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 1440;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /phenotype= "Hereditary Hemochromatosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                   APPLICANT: Drayna, Dennis T.
APPLICANT: Feder, John N.
APPLICANT: Feder, John N.
APPLICANT: Gnitzke, Andreas
APPLICANT: Ruddy, David
APPLICANT: Wolff, Roger K.
APPLICANT: Wolff, Roger K.
APPLICANT: Wolff, Roger K.
WUMBER OF INVENTION: Hereditary Hemochromatosis (CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                            PULGATION DATA:
APPLICATION NUMBER: 08/652,265
FILING DATE: 23-May-1996
FILING DATE: 12-May-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/632,673
FILING DATE: 16-Apr-1996
FILING DATE: 16-Apr-1996
APPLICATION NUMBER: 08/630,912
FILING DATE: 04-Apr-1996
ATTORNEY/AGENT INFORMATION:
NAME: POISSART, BRIAN M.
REGISTRATION NUMBER: 28,462
REGISTRATION NUMBER: 28,462
RECISTRATION NUMBER: 28,462
RECISTRATION NUMBER: 28,462
RECISTRATION NUMBER: 28,462
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        100.0%; Score 1440;
100.0%; Pred. No. 0;
ive 0; Mismatches
                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: Windows 95
SOFTWARE: WordPerfect Version 8
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/503,444A
FILING DATE: 14-Feb-2000
                                                                                                                                                              3: Pennie & Edmonds LLP
1155 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /label- 24d2
                         Thomas, Winston J. Drayna, Dennis T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: allele
LOCATION: replace(408, "g")
OTHER INFORMATION: /phenoty
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEX: 66141
INFORMATION FOR SEQ ID NO: 12:
SEQUENCE CHARACTERISTICS:
LENGTH: 1440 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      212-869-9741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       222..1268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MOLECULE TYPE: CDNA FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OTHER INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: allele
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
Matches 1440; Conserv
                                                                                                                                                                                        CITY: New York
STATE: New York
            INFORMATION:
                                                                                                                                                                                                                                                                                                                                                      CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME/KEY: CDS
                                                                                                                                                                                                                   USA
                                                                                                                                                                                                                                10036
                                                                                                                                                              ADDRESSEE:
STREET: 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LOCATION:
FEATURE:
                                                                                                                                                                                                    STATE: Ne
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEFAX:
 Patent No.
GENERAL IN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURE:
```

S

```
Query Match
                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                     301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     901
                                                                                                                                                                           qq
                                                                                                                                                                                                      QΫ́
                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                             ōλ
                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                     οy
                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                         Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
1081 -CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA 1140
                                                     1201 TARTATTAAGGAAGAGGAGGGTTCAAGAGGAGCCATGGGGCACTACGTCTTAGGTGAAC 1260
                                                                                                                                                            1381 IGCCTGACGAACTCCTTGATTTTAGCCTTCTCTGTTCATTTCCTCAAAAAGATTTCCCCA 1440
                                                                                                                                                                                                                                                                     TAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGGCACTACGTCTTAGCTGAAC 1260
                                                                                                                                               GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGAAAAACTAGAGACTCAAAG 1320
                                                                                                                                                                                                  AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAACATAGAAAT 1380
                                       TTGGAGTCATCAGTGGAATTGCTGTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hereditary Hemochromatosis Gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: 0S/08/652,265
FILING DATE: 23-MAY-1996
CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADDRESSEE: Townsend and Townsend and Crew LLJ
STREET: Two Enharcadero Center, Eighth Floor
TITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17957-000500
                                                                                                                                                                                                                                                                                                                                             Sequence 10, Application US/08652265
Patent No. 6055130
GENERAL INFORMATION:
APPLICANT: Thomas, Winston J.
APPLICANT: Feder, John N.
APPLICANT: Feder, John N.
APPLICANT: Ruddy, David
APPLICANT: Tsuchihashi, Zenta
APPLICANT: Tsuchihashi, Zenta
APPLICANT: Wolff, Roger K.
ITILE OF INVENTION: Hemolitary Hemo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERAING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATTORNEY/AGENT INFORMATION:
NAME: Smith, William M.
REGISTRATION NUMBER: 30,223
REFERENCE/DOCKET NUMBER: 1795:
TELECOMMUNICATION INFORMATION:
TELEFAX: (415) 576-0200
IELEFAX: (415) 576-0300
INFORMATION FOR SEQ ID NO: 10:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE CHARACTERISTICS:
LENGTH: 1440 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME/KEY: allele
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          94111-3834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                   us-08-652-265-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COUNTRY:
                                       1141
                                                                                           1201
                                                                                                                                                                        1261
                                                                                                                                                                                                  1321
                                                                                                                                                                                                                                                                               1381
                                                                                                                                              1261
              ρp
                                                                                                                                                                      Ω
                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                    δλ
                                       ò
                                                               g
                                                                                           δŻ
                                                                                                                   g
                                                                                                                                              Qγ
                                                                                                                                                                                                  à
```

```
300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             099
                                                                                                                                                                                                                                                                                                                                         CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCCGTTTCCCCGCCCCCCAAAAG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        960
                                                                                                                                                                                                                                                                        ACTAAAGTICIGAAAGACCIGIIGCITITCACCAGGAAGTITTACIGGGCATCTCCTGAG 120
                                                                                                                                                                                                                                                                                                      61 ACTAAAGTICIGAAAGACCIGIIGCIIITCACCAGGAAGIITIACIGGGCAICICCTGAG 120
                                                                                                                                                                     Gaps
                                                                                                                                                                                                    09
                                                                                                                                                                                                    241 CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TIGAAGCTITGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATGATGAGAGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           601 AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGGCCAGGACCACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCTTGAACTACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG
                                                                                                                                                                                                                                                                                                                                                                                                               181 AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAAATGGGCCCGCGAGCCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           361 TTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATCATGAGAGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             421 GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       541 AAAATCACAACCACAGCAAGGAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AATTCTGCCCTGACACACTGGATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCCTGCACAGCTGCAGCTTGCTGGAGCTGGGGAGGTGTTTTGGACCAACAAGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
                                                                                                                                Length 1440;
                                                                                                                                                                   ;
0
COTATION: replace(1066, "a")
COTHER INFORMATION: /phenotype= "Hereditary Hemochromatosis OTHER INFORMATION: /label= 24dl
US-08-652-265-10
                                                                                                                                                                   1; Indels
                                                                                                                                DB 3;
                                                                                                                              99.9%; Score 1438.4; 99.9%; Pred. No. 0;
                                                                                                                                                                 0; Mismatches
                                                                                                                                                                   Conservative
                                                                                                                                               Best Local Similarity
Matches 1439; Conserv
```

```
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                   ă
                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                       CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA 1140
                                                                                                                                                                                                                   1381 IGCCTGACGAACTCCTTGATTTTAGCCTTCTCTCTTTTCTTCTTCTTTCCTCAAAAAGATTTTCCCCA 1440
                                                                                                    1081 CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA 1140
                                                                                                                                                                                                                                                           1201 TAATATTAAGGAAGGAGGGTTCAAGAGGAGCCATGGGGGCACTACGTCTTAGCTGAAC 1260
                                                                                                                                                                                                                                                                          1261 GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG 1320
                                                                                                                                                                                                                                                                                                                                                                                                                                 1381 TGCCTGACGAACTCCTTGATTTTAGCCTTCTCTTTTATTCCTCAAAAAGATTTCCCCA 1440
                                                                                                                                                                                                     TTGGAGTCATCAGTGGAATTGCTGTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCA 1200
 CCTTGAACTACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG 960
                         GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCACAGATATACGTACCAGGTGGAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Thomas, Winston J.
APPLICANT: Drayna, Dennis T.
APPLICANT: Feder, John N.
APPLICANT: Golf, Andreas
APPLICANT: Ruddy, David
APPLICANT: Tsuchihashi, Zenta
APPLICANT: Wolff, Roger K.
APPLICANT: Wolff, Roger K.
CORRESPONDENCES: 44
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COUNTRY: USA
ZIP: 9411-3818 FORM:
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPMENTING SYSTEM: PC-DOS/NS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3: Townsend and Townsend and Crew LLP
Two Embarcadero Center, Eighth Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE/DOCKET NUMBER: 17957-000500 TELECOMMUNICATION INFORMATION: TELEPHONE: (415) 576-0200 TELEFAX: (415) 576-0300 INFORMATION FOR SEQ ID NO: 11:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/652,265
FILING DATE: 23-MAY-1996
CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 11, Application US/08652265
Patent No. 6025130
GENERAL INFORMATION:
APPLICANT: Thomas, Winston J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATTORNEY/AGENT INFORMATION:
NAME: Smith, William M.
REGISTRATION NUMBER: 30,223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-08-652-265-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STREET:
                                                                                     1021
                                                                                                                                            1081
                                                                                                                                                                                                    1141
                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                      g
                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                            a
                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                             ò
                                                        g
                                                                                     ò
                                                                                                                셤
                                                                                                                                            ò
                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                           õ
```

```
540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     720
                                                                                                                                                                                                                                                                                                                                                                                                                121 CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCCGTTTCCCCGCCCCCCAAAAG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               360
                                                                                                                                                                                                                                                                                                                                                                                                 ACTAAAGTTCTGAAAGACCTGTTGCTTTTCACCAGGAAGTTTTACTGGGCATCTCCTGAG 120
                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                    AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGGGGAGGACCACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGGCAGGACCACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGGAGTGGGAAAAGGCACAAGATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACT
                                                                                                                                                                                                                                                                                                                                    181 AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATGAGAGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGCCTGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               541 AAAATCACAACCACAGGAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AATTCTGCCCTGACACTGGATTGGAGGAGCAGAGCAGGACCCAGGGCCTGGCCCACCAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGGCGCTTGCTGCGTT
                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                        Length 1440;
                                                                                                            | LOCATION: 222.1268
| FEATURE:
| NAME/KEY: allele
| LOCATION: replace(408, "g")
| OTHER INFORMATION: /phenotype= "Hereditary Hemochromatosis
| OTHER INFORMATION: /label= 24d2
| US-08-652-265-11
                                                                                                                                                                                                                                                                                                      1; Indels
                                                                                                                                                                                                                                                                        DB 3;
                                                                                                                                                                                                                                                                      Score 1438.4;
Pred. No. 0;
0; Mismatches
                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity 99.9%;
Matches 1439; Conservative
LENGTH: 1440 base pairs
TYPE: nucleic acid
                                  single
                                                                                              CDS
222..1268
                                                                MOLECULE TYPE: CDNA
                                                 linear
                                 STRANDEDNESS:
TOPOLOGY: lin
                                                                               FEATURE:
NAME/KEY:
```

```
361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA 1140
                                                                                                                                                                                                                                                          TIGGAGICATCAGIGGAATIGCIGITITIGICGICATCTIGITCATIGGAATITIGITCA 1200
                                                                                                                                                                                                                                                                                                          TAATATTAAGGAAGAAGGCAGGGTTCAAGAGGAGCCATGGGGGCACTACGTCTTAGCTGAAC 1260
                                                                                                                                                                                                                                                                                                                                                          GTGAGTGACACCCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG 1320
                                                                                                                                                                                                                                                                                                                                                                                                                                            AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAACATAGAAAT 1380
                                                                                                                                                        CTCCTTTGGTGAAGGTGACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
                                                         ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCCAATGGGGATGGGACCTACCAGGGCT
                                                                                                                                                                                             GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTACCAGGTGGAGCACC
                                                                                              CCTTGAACTACTACCCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG
GCCCTGCACAGCTGCAGCTGCTGCAGCTGGGGAGAGGTGTTTTGGACCAACAAGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HEREDITARY HEMOCHROMATOSIS GENE PRODUCTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: Windows 95
COFTWARE: FastSEQ for Windows Version 2.0b
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             E: Pennie & Edmonds LLP
1155 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 10, Application US/08834497A
Patent No. 6440305
GENERAL INFORMATION:
APPLICANT: Thomas, Winston J.
APPLICANT: Feder, John N.
APPLICANT: Gnirke, Andreas
APPLICANT: Ruddy, David
APPLICANT: Ruddy, David
APPLICANT: Wolff, Roger K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION: HERE NUMBER OF SEQUENCES: 76 CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ZIP: 10036-2811
COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CITY: New York STATE: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-834-497A-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STREET:
                                                                                                                                                                                                                      1021
                                                                                                                                                                                                                                                                                                                                                                     1201
                                                                                                                                                                                                                                                                                                                                                                                              1261
                                                                                                                                                                                                                                                                                                                                                                                                                                             1321
                                                                                                                                                                                                                                              1081
                                                                                                                                                                                                                                                                                              1141
                                                                                                                                                                                                                                                                                                                                              1201
                                                                                                                                                                      961
                                                                                                                                                                                                                                                                                                                                                                                                                      1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1321
                                                                                                                                               961
781
                        781
                                                341
                                                                                              901
                                                                                                                       901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                      g
                                                                                                                                                                                               δλ
                                                                                                                                                                                                                  q
                                                                                                                                                                                                                                              οy
                                                                                                                                                                                                                                                                     엄
                                                                                                                                                                                                                                                                                              QΥ
                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                    q
                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                     q
                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                      g
                                                                                              δλ
                                                                                                                      g
                                                                                                                                              ò
```

```
180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61 ACTAAAGTICIGAAAGACCIGIIGCIITICACCAGGAAGIITIACIGGGCAICICCIGAG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCCAAAAG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181 AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCTGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATGATGAGAGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 1440;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LOCATION: replace(1066, "a")
OTHER INFORMATION: /phenotype= "Hereditary Hemochromatosis
OTHER INFORMATION:
OTHER INFORMATION: /label= 24d1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 99.9%; Score 1438.4; Best Local Similarity 99.9%; Pred. No. 0; Matches 1439; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                8907-0056-999
                                           PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/652,265
FILING DATE: 23-MAY-1996
CLASSIFICATION: 514
PRIOR APPLICATION ATA:
APPLICATION NUMBER: US 08/632,673
FILING DATE: 16-APR-1996
                                                                                                                                                            CLASSIFICATION: 514
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/630,912
FILING DATE: 04-APR-1996
                                                                                                                                                                                                                                                                                         REFERENCE/DOCKET NUMBER: 8907
REFERENCE/DOCKET NUMBER: 8907
TELECOMMUNICATION INFORMATION:
TELEFAM: 650-493-5556
TELEX: 66141 PENNIE
INFORMATION FOR SEO ID NO: 10:
SEQUENCE CHRACTERISTICS:
LENGTH: 1440 base pairs
TYPE: nucleic acid
STRANBENESS: single
                                                                                                                                                                                                                                                                              28,462
                                                                                                                                                                                                                            CLASSIFICATION: 514
ATTORNEY/AGENT INFORMATION:
NAME: Poissant, Brian M.
REGISTRATION NUMBER: 28,
            04-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  222..1268
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY: allele
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     linear
                             CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY: CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-08-834-497A-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                361
```

œ

```
1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1021 GGATAACCTTGGCTGTACCCCTGGGGAAGAGCAGATATACGTACCAGGTGGAGCACC 1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1081 CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA 1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1141 TTGGAGTCATCAGTGGAATTGCTGTTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCA 1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1201 TAATATTAAGGAAGAGCAGGGTTCAAGAGGAGCCATGGGGCACTACGTCTTAGCTGAAC 1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1321 AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAACATAGAAAT 1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      961 ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT 1020
                                                                                                                                                                                720
                                                                                                                                                                                                                                                   780
                                                                                                                                                                                                                                                                                                                     900
                                                                                                                                                                                                                                                                                                                                             900
                                                                                                                                                                                                                                                                                                                                                                    960
                                                                                                                                                                                                                                                                                                                                                                                         960
            1381 TGCCTGACGAACTCCTTGATTTTAGCCTTCTCTGTTCATTTCCTCAAAAGATTTCCCCA
1381 TGCCTGACGAACTCCTTGATTTTAGCCTTCTGTTCATTTCCTCAAAAAGATTTCCCCA
                                                                                                                                                                                GGATAACCTTGGCTGTACCCCCTGGGGAAGACCAGAGATATACGTACCAGGTGGAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTGAGTGACACGCAGCCTGCAGTCACTGTGGGGAAGGAGACAAAACTAGAGACTCAAAG
                                                                                                                                    601 AAGAAGACAACAGTACCGAGGGTACTGGAAGTACGGGTATGATGGGCAGGACCACCTTG
                                                                                                                                                 TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACT
                                                                                                                                                                                                                                         GCCCTGCACAGACTGCAGCAGTTGCTGGAGCTGGGGAGAGGTGTTTTGGACCAACAAGTGC
                                                                                                                                                                                                                                                                                                                       CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
                                                                                                                                                                                                                                                                                                                                                                   CCTTGAACTACTCCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG
GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC
                                              TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                        AAAATCACAACCACAGGAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGC
421
                                                                   481
                                                                                         541
                                                                                                                                                          501
                                                                                                                                                                                                                            721
                                                                                                                                                                                                                                                  721
                                                                                                                                                                                                                                                                         781
                                                                                                                                                                                                                                                                                              781
                                                                                                                                                                                                                                                                                                                     841
                                                                                                                                                                                                                                                                                                                                                                 901
                                                                                                                                                                                                                                                                                                                                                                                       901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1261
                                            481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 qq
                                                                g
                                                                                         ò
                                                                                                           g
                                                                                                                                    ò
                                                                                                                                                       셤
                                                                                                                                                                           δ
                                                                                                                                                                                                     g
                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                             op
                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                             d
                                                                                                                                                                                                                                                                                                                  ογ
                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                               qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                            ò
```

```
ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 3; Length 1440;
                                        APPLICANT: Drawn, Dennis T.
APPLICANT: Feder, John N.
APPLICANT: Feder, John N.
APPLICANT: Ruddy, David
APPLICANT: Ruddy, David
APPLICANT: Tsuchihashi, Zenta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hemochromatosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ĥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /phenotype= "Hereditary
                                                                                                                                                                                                                                                                                                                                               COUNTRY: USA

ZIF: 10036-2811
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: TBM PC Compatible
OPERATING SYSTEM: Windows 95
SOFTWARE: FastSEQ for Windows Version 2.(
CURRENT APPLICATION NUMBER: US/08/834,497A
FILING DATE: 04-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99.9%; Score 1438.4;
99.9%; Pred. No. 0;
iive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            28,462
ER: 8907-0056-999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION: 514
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 90 86/30,912
FILING DATE: 04-ARR-1996
CLASSIFICATION: 514
ATTORNEY/AGENT INFORMATION:
NAME: POISSAIL, Brian M.
REGISTRATION NUMBER: 28,462
REFERENCE/POCKET NUMBER: 8907-0056-9
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650-493-4935
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CLASSIFICATION: 514
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/652,265
FILING DATE: 23-MAY-1996
CLASSIFICATION: 514
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/632,673
FILING DATE: 16-APR-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LOCATION: replace(408, "g")
OTHER INFORMATION: /phenotype= '0THER INFORMATION: /label= 24d2
OTHER INFORMATION: /label= 24d2
                         Thomas, Winston J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1440 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELERAX: 650-493-5556
TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY: CDS
LOCATION: 222..1268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MOLECULE TYPE: CDNA FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY: allele
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                New York
INFORMATION:
                                                                                                                                                                                                                                                                                                            New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-834-497A-11
                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Simi
Matches 1439;
                                                                                                                                                                                                                                                                                STREET:
CITY: Ne
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH:
                                                                                                                                                                                                                                                                                                                             STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
```

ö

Sequence 11, Application US/08834497A

US-08-834-497A-11

1141	1201	1261	1321	QY 1381 TGCCTGA 	RESULT 8 US-09-503-444A-1C ; Sequence 10, Ap	GENERAL INFORM  APPLICANT:  APPLICANT:  APPLICANT:	APPLICANT: APPLICANT: APPLICANT: APPLICANT:		STREET: 1 CITY: New STATE: New	ŏ		Ы			ATTORNEY/AGE NAME: POI REGISTRATI REFERENCE/	F	SEQUENCE:  SEQUENCE:  LENGTH: 1  TYPE: nuc  STRANDEDNE
. 61 ACTAAAGTICTGAAAGACCTGTTGCTTTTCACCAGGAAGTTTTACTGGGCATCTCCTGAG 120 61 ACTAAAGTTCTGAAAGACCTGTTGCTTTTCACCAGGAAGTTTTACTGGGCATCTCCTGAG 120 61 ACTAAAGTTCTGAAAGACCTGTTGCTTTTCACCAGGAAGTTTTACTGGGCATCTCCTGAG 120	121 CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCCAAAAG 180 	181 AAGCGGAGATTTAACGGGGACGTGCGGCCAGACTGGGGAAATGGGCCCGCGAGCCAGC 240 	241 CGGCGCTTCTCCTCGTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCGTT 300 11111111111111111111111111111111111	301 CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT 360 	361 TTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCTGTGATGATGATGAGAGTGGC 420 	421 GTGTGGAGCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC 480 	481 TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG 540 	541 AAAATCACAACCACAGGAAGTCCCACACCTGCAGGTCATCCTGGGCTGTGAAATGC 600 	601 AAGAACACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGGCAGGACCACCTTG 660 	661 AATTCTGCCCTGACACACTGGATTGGAGGAGCAGAACCCAGGGCCTGGCCCACCAAGC 720 	721 TGGAGTGGGAAAGGCACAAGATTCGGCCCAGGCGGAGCCTACCTGGAGGGACT 780	781 GCCCTGCACAGCTGCAGCAGTTGCTGGAGCTGGGGAGAGTGTTTTGGACCAACAAGTGC 840 	841 CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG 900 	901 CCTTGAACTACTCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG 960 	961 ATGCCAAGGACTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT 1020 	1021 GGATAACCTTGGCTGTACCCCTGGGGAAGACCAGACATATACGTACCAGGTGGAGCACC 1080 	1081 CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCTAGTCA 1140 [
Qy Db	QY Db	OY Db	QY Db	QQ QD	QA	Qy	Qy	do Ob	QY	Qy Dp	Qy	Qy Db	Qy Db	Qy Dp	qa Ko	QY	Oy Db

```
GACACGCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG 1320
                                                                                                                                         STGCATTIATGAGCTCTTCATGTTTCAGGAGAGATTGAACCTAAACATAGAAT 1380
                                                                                                                                                                                                      TTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGGCACTACGTCTTAGCTGAAC
                                                                                                                                                                                                                                                                                                                                                                                   FFORMATION:
TT. Thomas, Winston J.
TT. Drayna, Dennis T.
TT. Feder, John N.
TT. Ruddy, David
TT. Tsuchihashi, Zenta
TT. WOLLF, Roger K.
TY. WOLLF, Roger K.
TY. SEQUENCES: 44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8907-0088-999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  READABLE FORM:
TYPE: Floppy disk
TYPE: Floppy disk
TYPE: BM PC compatible
ING SYSTEM: Windows 95
RE: WordPerfect Version 8
APPLICATION DATA:
DATE: 14-Feb-2000
FICCATION INUMBER: 08/652,265
DATE: 23-May-1996
DATE: 23-May-1996
DATE: 16-Apr-1996
DATE: 16-Apr-1996
DATE: 16-Apr-1996
DATE: 16-Apr-1996
DATE: 16-Apr-1996
DATE: 10-Apr-1996
DATE: 10-Apr-1996
DATE: 10-Apr-1996
DATE: 10-Apr-1996
DATE: 10-Apr-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          E: Pennie & Edmonds LLP
1155 Avenue of the Americas
ew York
New York
                                                                                                                                                                                                                                                                                                                                           10
Application US/09503444A
28594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Poissant, Brian M.
PYTON NUMBER: 28,462
EL/DOCKET NUMBER: 8907
NICATION INFORMATION:
212-790-9090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OR SEQ ID NO: 10:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CHARACTERISTICS:
1440 base pairs
nucleic acid
NNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  INCE ADDRESS:
```

1020 1080 1080 1140

900 960 960 1200 1260 1260

```
TTGGAGTCATCAGTGGAATTGCTGTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCA 1200
                                                                                                                                                                                                                                  CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA
                                                                                                                                                                                                                                                                                                                                                                                                 1381 TGCCTGACGAACTCCTTGATTTTAGCCTTCTCTGTTCATTTCCTCAAAAAGATTTCCCCA
    CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
                                                       CCTTGAACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG
                                                                                                             ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT
                                                                                                                                      ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGAACCTACCAGGGCT
                                                                                                                                                                1021 GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTACCAGGTGGAGCACC
                                                                                                                                                                                                                    CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA
                                                                                                                                                                                                                                                                                                                              TAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGGCACTACGTCTTAGCTGAAC
                                                                                                                                                                                                                                                                                                                                                                                   GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1381 TGCCTGACGAACTCCTTGATTTTAGCCTTCTCTGTTCATTTCCTCAAAAAGATTTCCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hereditary Hemochromatosis Gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US/09/503,444A FILING DATE: 14-Feb-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 11, Application US/09503444A Patent No. 6228594 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cennie & Edmonds Ll
circET: 1155 Avenue of the Ame
CITY: New York
STATE: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: Windows 95
SOFTWARE: WordPerfect Version
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Thomas, Winston J.
APPLICANT: Drayna, Dennis T.
APPLICANT: Feder, John N.
APPLICANT: Gnirke, Andreas
APPLICANT: Ruddy, David
APPLICANT: Tuchihashi, Zenta
APPLICANT: Tuchihashi, Zenta
APPLICANT: Wolff, Roger K.
TITLE OF INVENTION: Hereditary B
NUMBER OF SEQUENCES: 44
CORRESPONDENCE ADDRESSE:
ADDRESSEE: Pennie & Edonds Li
STREET: 1155 Avenue of the Ame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 14-Feb-
CLASSIFICATION:
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ZIP: 10036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-503-444A-11
                                                                                                                                                                                                                    1081
                                                                                                                                                                                                                                              1081
                                                                                                                                                                                                                                                                        1141
                                                                                                                                                                                                                                                                                                                             1201
                                                                                                                                                                                                                                                                                                                                                      1201
  841
                                                     901
                                                                                901
                                                                                                             961
                                                                                                                                     961
                                                                                                                                                                                                                                                                                                                                                                                 1261
                          g
                                                                                                                                                                                                                                                                                                 셤
                                                       ò
                                                                             g
                                                                                                          δ
                                                                                                                                   Db
                                                                                                                                                              ò
                                                                                                                                                                                        d
                                                                                                                                                                                                                    δy
                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                              ŏ
                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ద
                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                        CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGGTTTCCCCGCCCCCCCAAAAG 180
                                                                                                                                                                                                                                                                                                                                                      121 CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCCCAAAAG 180
                                                                                                                                                                                                                                                                                                                                                                                                            300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATGAGAGTCGCC 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          840
                                                                                                                                                                                                                                                                                    ACTAAAGTICIGAAAGACCIGTIGCITTICACCAGGAAGTITTACIGGGCAICTCCTGAG 120
                                                                                                                                                                                                                                                                                                             61 ACTAAAGTICIGAAAGACCIGIIGCIIIICACCAGGAAGIIIIACIGGGCAICICCIGAG 120
                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                               CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGGGGCGCTTGCTGCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGGCAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTGAAGCTTTGGGCTACGTGCATGACCAGCTGTTCGTGTTCTATGATCATGAGAGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGCCTGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAAATCACAACCACAGGAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAGAAGACAACAGCGAGGGCTACTGGAAGTACGGGTATGATGGCGCAGGACCACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGCAGACAGGGCCTACCTGGAGAGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AATTCTGCCCTGACACACTGGATTGGAGAGCAGAACCCAGGGCCTGGCCCACCAAGC
                                                                                                                                                                                                                                                                                                 ;
                                                                                                                                                                            Length 1440;
                                                                                              Hemochromatosis
                                                                                                                                                                                                      Indels
                                                                                                                                                                            DB 4;
                                                                                                                                                                                                      ä
                                                                                             "Hereditary
                                                                                                                                                                        Score 1438.4;
Pred. No. 0;
0; Mismatches
                                                                                             /phenotype=
                                                                                                                       /label= 24d1
                                                              NAME/KEY: allele
LOCATION: replace(1066, "e
OTHER INFORMATION: /phenot
OTHER INFORMATION: /label*
                                                                                                                                                                        Query Match
Best Local Similarity 99.9%;
Matches 1439; Conservative
                          CDS
222..1268
MOLECULE TYPE:
FEATURE:
                         NAME/KEY:
LOCATION:
FEATURE:
                                                                                                                                   US-09-503-444A-10
                                                                                                                                                                                                                                                                                  19
                                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                   241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                421
                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                             d
                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             õ
```

1440

```
TIGGAGICAICAGGGAATIGCIGITITIGICGICAICTIGITICAITGGAATITIGITA 1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1321 AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAACATAGAAAT 1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1381 TGCCTGACGAACTCCTTGATTTTAGCCTTCTCTGTTCATTTCCTCAAAAAGATTTCCCCA 1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                       AAAATCACACCACAGCAAGGAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGC
                                               AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGCCAGGACCACCTTG
                                                                                                                                                                                                                               GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTACCAGGTGGAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1141 TIGGAGTCATCAGTGGAATTGCTGTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1201 TAATATTAAGGAAGAGGCAGGGTTCAAGAAGAGCCATGGGGCACTAGGGTCTTAGCTGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG
                                                                                                                                                     AATTCTGCCCTGACACACTGGATTGGAGAGCAGAACCCAGGGCCTGGCCCACCAAGC
                                                                                                                                                                                                              TGGAGTGGGAAAAGGCACAAGATTCGGGCCAGGCCAGAACAGGGCCTACCTGGAGAGGGACT
                                                                                                                                                                                                                                                                        GCCCTGCACAGCTGCAGCAGTTGCTGGAGCTGGGGAGAGGTGTTTTGGACCAACAAGTGC
                                                                                                                                                                                                                                                                                                                                                                                              CCTTGAACTACCTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                       961 ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1201 TAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGCACTACGTCTTAGCTGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1321 AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAACATAGAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 9, Application US/08652265
Patent No. 6025130
GENERAL INFORMATION:
APPLICANT: Thomas, Winston J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Drayna, Dennis T.
Feder, John N.
Gnirke, Andreas
Ruddy, David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 10
US-08-652-265-9
                               541
                                                                                                                      601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1381
                                                                                        601
                                                                                                                                                     199
                                                                                                                                                                                                              721
                                                                                                                                                                                                                                          721
                                                                                                                                                                                                                                                                       781
                                                                                                                                                                                                                                                                                                                                                                                            901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     961
                            QY
                                                          qq
                                                                                                                                                 ΩY
                                                                                                                                                                                엄
                                                                                                                                                                                                              δy
                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                  Dp
                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                            P
                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                qq
                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                           QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δŽ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121 CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGGCCCCCCAAAAG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACTAAAGTICTGAAAGACCTGTIGCTTTTCACCAGGAAGTTTTACTGGGCATCTCCTGAG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TIGAAGCITIGGGCTACGIGGAIGACCAGCIGITCGIGITCIAIGAIGAGAGGICGCC 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGCCCCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCCGCTTGCTGCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATGATGAGAGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCCGCGAGCCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCCAGATGTGGCTGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 1440;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                       Hemochromatosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                     /phenotype= "Hereditary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 1438.4;
Pred. No. 0;
0; Mismatches
                                                                                                                                                                8907-0088-999
           FILING DATE: 23-May-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/632,673
FILING DATE: 16-Apr-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/630,912
FILING DATE: 04-Apr-1996
ATTORNEY/AGENT INFORMATION:
NAME: Poissant, Brian M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /label= 24d2
APPLICATION NUMBER: 08/652,265
                                                                                                                                                                                                         TELEFAA: 11.
TELEX: 6614.
INFORMATION FOR SEQ ID NO: 11:
SEQUENCE CHARACTERISTICS:
LENGTH: 1440 base pairs
TYPE: nucleic acid
                                                                                                                                           REGISTRATION NUMBER: 28,462
REFRENCE/DOCKET NUMBER: 89C
TELECOMMUNICATION INFORMATION:
TELEPHONE: 212-790-9090
TELEFAX: 212-869-9741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match

Best Local Similarity 99.9%;
Matches 1439; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                    LOCATION: replace(408, OTHER INFORMATION: /phe OTHER INFORMATION: OTHER INFORMATION: /lab
                                                                                                                                                                                                                                                                                TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                            NAME/KEY: CDS
LOCATION: 222..1268
                                                                                                                                                                                                                                                                                                                              MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                linear
                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: allele
LOCATION: replace
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-09-503-444A-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
```

δ

ò

δ

ö

õ

ò

1080

780

900

480 540 540

420 420 480 099

99

009 600 720 720 780 780 840 840 900 900 960

```
1081 CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTGGAGTCATCAGTGGAATTGCTGTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          301 CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                                                                                                    GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGC
                                                                                                                                                                                                                                                                                                                                                                                        TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       541 - AAAATCACAACCACAGGAAGGAGTCCCACACCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGGCAGGACCACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AATTCTGCCCTGACACACTGGATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCCTGCACAGCTGCAGCTTGCTGGAGCTGGGGAGGTGTTTTGGACCAACAAGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CICCITITGGIGAAGGIGACACATCATGIGACCICITCAGIGACCACICTACGGIGICGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCTTGAACTACCCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGATAACCTTGGCTGTACCCCTGGGGAAGAGCAGAGATATACGTACCAGGTGGAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGCACTACGTCTTAGCTGAAC
                                                                                                                                                                                               CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                TIGAAGCTITGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATGAGAGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1201
                                                                                                                                                                                               301
                                                                                                                                                                                                                                                                                361
                                                                                                                                                                                                                                                                                                                                                                    421
                                                                                                                                                                                                                                                                                                                                                                                                                                                     481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      q
                                                                 q
                                                                                                           οy
                                                                                                                                            셤
                                                                                                                                                                                               δ
                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                      q
                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                           염
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  염
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACTAAAGTICIGAAAGACCIGIIGCIIITICACCAGGAAGIIITIACIGGGCAICICCIGAG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 1440;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /phenotype= "normal or wild-type (unaffected)"
/label= 24d1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      wild-type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 wild-type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 3;
                                                                                                                                                                                                                                                 MEDIDATE NATIONAL TOWN OF THE MEDIDATE NATIONAL TOWN OF THE NATIONAL THE NATIONAL TOWN OF THE NATIONAL THE NATIONA
                                              ...undESS:
...undESS:
STREET: Two Embarcadero Center, Elghth Floor
CITY: San Francisco
STATE: California
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 1436.8; I
Pred. No. 0;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                      LASSIFICATION:
NAME: SMITh, William M.
REGISTRATION NUMBER: 30,223
REGISTRATION NUMBER: 30,223
REFERENCE/DOCKET NUMBER: 17957-000500
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 576-0200
TELEFAX: (415) 576-0300
INFORMATION FOR EDD IN 00: 9:
SEQUENCE CHARACTERISTICS:
LENGTH: 1440 Dasse pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /phenotype= "normal
(unaffected)"
/label= 24d2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /phenotype= "normal
(unaffected)"
/label= 24d7
APPLICANT: Tsuchihashi, Zenta
APPLICANT: Wolff, Roger K.
TITLE OF INVENTION: Hereditary I
NUMBER OF SEQUENCES: 44
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LOCATION: replace(1066, "g")
OTHER INFORMATION: /phenotype
OTHER INFORMATION: (unaffecte.
OTHER INFORMATION: /label= 24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           replace(414, "a")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99.84;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME/KEY: CDS
LOCATION: 222..1268
FEATURE:
NAME/KEY: allele
LOCATION: replace(408, "COTHER INFORMATION: /phenOTHER INFORMATION: /label
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity 99.9
Matches 1438; Conservative
                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: allele
LOCATION: replace(4)
OTHER INFORMATION:
OTHER INFORMATION:
OTHER INFORMATION:
FRATURE:
RATURE:
LOCATION: replace(1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MOLECULE TYPE: CDNA FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        linear
                                                                                                                                                                                                              ZIP: 94111-3834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; OTHER IN:
US-08-652-265-9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
```

1020 1020 1080

```
421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ٥y
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        q
                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ă
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δλ
                                                                                                                             1261 GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG 1320
                                                                                  1321 AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAAACATAGAAAT
                                                                                                                                                                                                                                                                                                                            APPLICANT: Feder, John N.
APPLICANT: Gnirke, Andreas
APPLICANT: Ruddy, David
APPLICANT: Tsuchlhashi, Zenta
APPLICANT: Wolff, Roger K
TITLE OF INVENTION: HEREDITARY HEMOCHROMATOSIS GENE PRODUCTS
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATTORNEY AGENT INFORMATION:
NAME: Poissant, Brian M.
REGISTRATION NUMBER: 28,462
REFERENCE/DOCKET NUMBER: 8907-0056-999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER: IBM PC compatible OPERATING SYSTEM: Windows 95 SOFTWARE: FeatSEQ for Windows Version CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CURRENT AFPLICATION NUMBER: US/08/834,497A
PELING DATE: 04-APR-1997
CLASSIFICATION: 514
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/652,265
FILING DATE: 23-MAY-1996
CLASSIFICATION DATA:
APPLICATION NUMBER: US 08/632,673
FILING DATE: 16-APR-1996
CLASSIFICATION NUMBER: US 08/632,673
FILING DATE: 16-APR-1996
CLASSIFICATION DATA:
APPLICATION NUMBER: US 08/630,912
FILING DATE: 04-APR-1996
CLASSIFICATION DATA:
APPLICATION NUMBER: US 08/630,912
FILING DATE: 04-APR-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1: Pennie & Edmonds LLP
1155 Avenue of the Americas
                                                                                                                                                                                                                                            Sequence 9, Application US/08834497A
Patent No. 6140305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELECOMMUNICATION INFORMATION:
TELEPHONE: 650-493-4935
                                                                                                                                                                                                                                                                                              APPLICANT: Thomas, Winston J. APPLICANT: Drayna, Dennis T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEX: 66141 PENNIE INFORMATION FOR SEQ ID NO: 9:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        650-493-5556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ZIP: 10036-2811
                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE:
                                                                                                                                                                                                                RESULT 11
US-08-834-497A-9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STATE:
                               g
                                                                δλ
                                                                                              g
                                                                                                                               ò
                                                                                                                                                               g
```

```
540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61 ACTAAAGTICIGAAAGACCIGIIGCIITITCACCAGGAAGIITITACIGGGCAICICCIGAG 120
                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                      241 CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGCTTGCTGCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     301 CACACTCTCTGCCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181 AAGCGGAGATTTAACGGGGACGTGCGGCCAGAGCTGGGGAAATGGGCCCGCGAGCCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    361 TIGAAGCITIGGGCIACGIGGAIGACCAGCIGIICGIGIICIAIGAIGAIGAGAGICGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTGTGGAGCCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCCAGATGTGGCTGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  541 AAAATCACAACCACAGCAAGGAGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  601 AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGGCAGGACCACCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    661 AATTCTGCCCTGACACACTGGATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGC
                                                                                                                                                                                                                                                                                                                        Length 1440;
                                                                                                               /phenotype= "normal or wild-type (unaffected)" /label= 24d7
                                                                                                                                                                                                                /phenotype= "normal or wild-type (unaffected)" /label= 24d1
                           /phenotype= "normal or wild-type
(unaffected)"
/label= 24d2
                                                                                                                                                                                                                                                                                                                        DB 3;
                                                                                                                                                                                                                                                                                                                                                         2;
                                                                                                                                                                                                                                                                                                                       Score 1436.8;
Pred. No. 0;
                                                                                                                                                                                                                                                                                                                                                         0; Mismatches
                                                                                          NAME/KEY: allele

COATION: replace(414, "a")

COTHER INFORMATION: /phenotype=

OTHER INFORMATION: /label= 24d7

FEATURE:

NAME/KEY: allele

LOCATION: replace(1066, "g")

OTHER INFORMATION: /phenotype=

OTHER INFORMATION: /phenotype=

OTHER INFORMATION: /phenotype=

OTHER INFORMATION: /label= 24d1

US-08-834-497A-9
NAME/KEY: allele
LOCATION: replace(408, "c")
OTHER INFORMATION: (unaffecte
OTHER INFORMATION: (unaffecte
OTHER INFORMATION: /label= 24
                                                                                                                                                                                                                                                                                                                        Query Match 99.8%;
Best Local Similarity 99.9%;
Matches 1438; Conservative (
```

; 0

```
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                          1021 GGATAACCTTGGCTGTACCCCTGGGGAAGAGCAGAGATATACGTGCCAGGTGGAGCACC 1080
                                                                                                                                                                                                                                                                                                                                                   CAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA 1140
                                                                                                                                                                                                                                                                                                                                                                    1081 CAGGCCTGGATCAGCCCTCATTGTGATCTGGGAGCCCTCACCGTCTGGCACCCTAGTCA 1140
                                                                                                                                                                                                                                                                                                                                                                                                          1141 TTGGAGTCATCAGTGGAATTGCTGTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCA 1200
                                                                                                                                                                                                                                                                                                                                                                                                                            961 ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCAATGGGGATGGGACCTACCAGGGCT 1020
                                                                                                                                                                                                                                                                                            GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTACCAGGTGGAGCACC 1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGCCACTACGTCTTAGCTGAAC 1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG 1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGTTGAACCTAAAACATAGAAAT 1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGCCTGACGAACTCCTTGATTTTAGCCTTCTCTGTTCATTTCCTCAAAAGATTTCCCCA 1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1381 IGCCTGACGAACTCCTTGATTTTAGCCTTCTCTTCATTTCCTCAAAAGATTTCCCCA 1440
                                                                                                                                   CCTTGAACTACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCCAATGG 960
                                                                         721 TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGCAAGAACAGGGCCTACCTGGAGAGGGACT
                781 GCCCTGCACAGCTGCAGCTGCTGGAGCTGGGGAGGGTGTTTTGGACCAACAAGTGC
                                                                                                                                                                                                                                                   841 CTCCTTTGGTGAAGGTGACACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Thomas, Winston J.
APPLICANT: Thomas, Winston J.
APPLICANT: Feder, John N.
APPLICANT: Feder, John N.
APPLICANT: Ruddy, David
APPLICANT: Ruddy, David
APPLICANT: Wolff, Roger K.
APPLICANT: Wolff, Roger K.
NUMBER OF SEQUENCES: 44
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1155 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 9, Application US/09503444A Patent No. 6228594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COUNTAL.

CONFORM.

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

AMDITER: IBM PC compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STREET: 1155 Aver CITY: New York STATE: New York COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-09-503-444A-9
                                                                                                                                                                                                                                                                                            1021
                                                                                                                                                                                                                                                                                                                                                                                                                                         1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1381
                                                                                                                                                                           901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1261
                                                                                                                                                                                                                                                                                                                                                    1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1321
                             g
                                                                                                                                              g
                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                    8
                                                          ò
                                                                                     g
                                                                                                                 ò
                                                                                                                                                                           ò
                                                                                                                                                                                                                                     å
                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                       q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
```

```
61 ACTAAAGTICTGAAAGACCTGTTGCTTTTCACCAGGAAGTTTTACTGGGCATCTCCTGAG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCTAGGCAATAGCTGTAGGGTGACTTCTGGAGCCATCCCCGTTTCCCCGCCCCCAAAAG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 4; Length 1440;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COTHER INFORMATION: (unaffected)" (US-09-503-444A-9)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /phenotype= "normal or wild-type (unaffected)"
/label= 24d2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /phenotype= "normal or wild-type
(unaffected)"
/label= 24d7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99.8%; Score 1436.8; 99.9%; Pred. No. 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Mismatches
                                                                                                                                                                                                                                                                                                                8907-0088-999
                                  APPLICATION NUMBER: US/09/503,444A FILLING DATE: 14-Feb-2000 CLASSIFICATION:
                                                                        CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/652,265
FILING DATE: 23-May-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/632,673
FILING DATE: 16-Apr-1996
PRIOR APPLICATION NUMBER: 08/630,912
FILING DATE: 04-Apr-1996
APPLICATION NUMBER: 28,462
REFERENCE/DOCKET NUMBER: 8907-00!
TELECAMUNICATION INPORMATION:
TELECAMUNICATION INPORMATION:
TELECHAX: 212-990-9900
TELEFAX: 212-990-9900
TELEFAX: 212-990-9901
SOFTWARE: WordPerfect Version 8 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LOCATION: replace(414, "a")
OTHER INFORMATION: /phenotyr
OTHER INFORMATION: (unaffect
OTHER INFORMATION: /label= ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LOCATION: replace(408, "c")
OTHER INFORMATION: /phenotyr
OTHER INFORMATION: (unaffec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best_Local Similarity 99.9
Matches 1438; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: CDS
LOCATION: 222..1268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY: allele
LOCATION: replace
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY: allele
LOCATION: replace
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
```

```
1321
              1321
                            1381
                                          1381
                                                                                                                                                                                                                                                                                                  Н
                                                                                                                                                                                                                                                                                                                                                                                                                       241
                                                                                                                                                                                                                                                                                                                 282
                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                               342
                                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                            402
                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                         462
                                                                                                                                                                                                                                                                                                                                                                                                                                       522
                                                                                                                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              702
             g
                                          qq
                                                                                                                                                                                                                                                                                                  q
                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                               ద
                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                      qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ωp
ŏ
                            δy
                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                      QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QΛ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ω
                                                                                                                                                                                                                                                                                                                                                                     1020
                                                                                                                                                                                                                                                                                                                                                                                    1020
                                                                                                                                                                                                                                                                                                                                                                                                  1080
                                                                                                                                                                                                                                                                                                                                                                                                                1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                             1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   300
                                   360
                                                  360
                                                               420
                                                                              420
                                                                                             480
                                                                                                            480
                                                                                                                          540
                                                                                                                                        540
                                                                                                                                                        900
                                                                                                                                                                     009
                                                                                                                                                                                    099
                                                                                                                                                                                                   099
                                                                                                                                                                                                                 720
                                                                                                                                                                                                                                720
                                                                                                                                                                                                                                               780
                                                                                                                                                                                                                                                              780
                                                                                                                                                                                                                                                                             840
                                                                                                                                                                                                                                                                                           840
                                                                                                                                                                                                                                                                                                         900
                                                                                                                                                                                                                                                                                                                        900
                                                                                                                                                                                                                                                                                                                                       960
                                                                                                                                                                                                                                                                                                                                                      960
                                                                                                                                                                                                                                                                                                                                                                                                                              ATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCCAATGGGGATGGGACCTACCAGGGCT
                                                                                                                                                                                                                                                                                                                                                                                                         1021 GGATAACCTTGGGCGGAAGAGCAGAGATATACGTGCCAGGTGGAGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTGGAGTCATCAGTGGAATTGCTGTTTTTTTGTCGTCATCTTGTTCATTGGAATTTTGTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGGCGCTTCTCCTCCTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGGCGCTTGCTGCGTT
                                   CACACTCTCTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCTTGT
                                          TTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATGAGAGTCGCC
                                                                      GTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGCCTGCAGC
                                                                                                    TGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTATGG
                                                                                                                                                      AAAATCACAACCACAGGAGGTCCCACACCCTGCAGGTCATCCTGGGCTGTGAAATGC
                                                                                                                                                              601 AAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTATGATGGGCAGGACCACCTTG
                                                                                                                                                                                                                 AATTCTGCCCTGACACACTGGATTGGAGAGCAGCAGAACCCAGGGCCTGGCCCACCAAGC
                                                                                                                                                                                                                                              TGGAGTGGGAAAGGCACAAGATTCGGGCCAGGCAGAACAGGGCCTACCTGGAGAGGGACT
                                                                                                                                                                                                                                                        GCCCTGCACAGCTGCAGCAGTTGCTGGAGCTGGGGGAGGTGTTTTGGACCAACAAGTGC
                                                                                                                                                                                                                                                                                    CTCCTTTGGTGAAGGTGACATCATGTGACCTCTTCAGTGACCACTCTACGGTGTCGGG
                                                                                                                                                                                                                                                                                                                                      CCTTGAACTACTACCCCCAGAACATCACCATGAAGTGGCTGAAGGATAAGCAGCAATGG
                                                                                                                                                                                                                                                                                                                                                                            GGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGAGATATACGTACCAGGTGGAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGGCCACTACGTCTTAGCTGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTGAGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGACAAAACTAGAGACTCAAAG
                                                                                                                                                                                                                                             721
                                                                                                                                                                                                                                                                                                                                                                                  961
                                                                                                                                       481
                                                                                                                                                       541
                                                                                                                                                                                                                 661
                                                                                                                                                                                                                                                             721
                                                                                                                                                                                                                                                                            781
                                                                                                                                                                                                                                                                                                         841
                                                                                                                                                                                                                                                                                                                                                                    961
                                                                                                                                                                                                                                                                                                                                                                                                  1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                           1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1261
      241
                                   301
                                                 301
                                                               361
                                                                              361
                                                                                            421
                                                                                                                          481
                                                                                                                                                                                                                                                                                                                                      901
                                                                                                                                                                                                                                                                                                                                                    901
                                                                                                                                                                                                                                                                                          781
                     g
                                               Pp
                                                                           g
                                                                                          δy
                                                                                                         g
                                                                                                                         οy
                                                                                                                                   g
                                                                                                                                                      δλ
                                                                                                                                                                 Dp
                                                                                                                                                                                QΥ
                                                                                                                                                                                              Ω
                                                                                                                                                                                                                Qy
Db
                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                         Db
                                                                                                                                                                                                                                                                          QΥ
                                                                                                                                                                                                                                                                                     pp
                                                                                                                                                                                                                                                                                                    Qγ
                                                                                                                                                                                                                                                                                                                    Ω
                                                                                                                                                                                                                                                                                                                                      οy
                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                ΩŸ
                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                            οy
                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                           δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      qq
      à
                                  ò
                                                               δ
```

```
180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9
                                                                         222 ATGGGCCCGCGAGCCAGGCCGGCGTTCTCCTCTGATGCTTTTGCAGACCGCGGTCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GACCTTGGTCTTTCCTTGTTTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TATGATGATGAGAGTCGCCGTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            agccagatgtgggctgcagctgagtcagagtctgaaagggtgggatcacatgttcactgtt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GACTTCTGGACTATTATGGAAAATCACAACCACAGCAAGGAGTCCCACCCCTGCAGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gaettetggaetattatggaaaateacaaceaeageaaggagteecaeaecetgeaggte
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAGGGCTACTGGAAGTACGGGTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GATGGGCAGGACCACCTTGAATTCTGCCCTGACACACTGGATTGGAGAGCAGCAGAACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGGGCCTGGCCCACCAAGCTGGAGTGGGAAAGGCACAAGATTCGGGCCAGGCAGAACAGG
                                                           TGCCTGACGAACTCCTTGATTTTAGCCTTCTCTGTTCATTTCCTCAAAAAGATTTCCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGCCAGATGTGGCTGCAGCTGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2506;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ;
                                                                                                                                                                                                                                                         DISORDERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                        314
                                                                                                                                                                                                                                                                                                                                                                                                                                                      nucleotide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4;
                                                                                                                                                                                                                                                         IRON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2,
                                                                                                                                                                                                        APPLICANT: Rothenberg, Barry E.
APPLICANT: Sawada-Hiral, Ritsuko
APPLICANT: Sawada-Hiral, Ritsuko
APPLICANT: Barton, James C.
TITLE OF INVENTION: MUTATIONS ASSOCIATED WITH IRC
FILE REPERENCE: 10653/002001
CURRENT APPLICATION UNBER: US/09/277,457
CURRENT FILING DATE: 1999-03-26
NUMBER OF SEQ ID NOS: 30
SOFTWARE: FeatSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 1215.8;
Pred. No. 0;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                        mutation at
                                                                                                                                                               Sequence 1, Application US/09277457
Patent No. 6355425
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  84.4%;
99.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                       NAME/KEY: mutation

LOCATION: (0)...(0)

OTHER INFORMATION: Missense

US-09-277-457-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM: Homo Sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity
Matches 1217; Conserv
                                                                                                                                                                                                                                                                                                                                                              2506
                                                                                                                                                   -09-277-457-1
                                                                                                                                                                                                                                                                                                                                                                             DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                              LENGIH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                qq
```

```
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ă
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1362 TGAACCTAAACATAGAAATTGCCTGACGAACTCCTTGATTTTAGCCTTCTCTGTTCATTT 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 | 1421 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ttcattggaattttgttcataatattaaggaagaggcagggttcaagaggagccatgggg 1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CAAAACTAGAGACTCAAAGAGGGAGTGCATTTATGAGCTCTTCATGTTTCAGGAGAGAGT 1361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACGTACCAGGTGGAGCACCCAGGCCTGGATCAGCCCCTCATTGTGATCTGGGAGCCCTCA 1121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTCATTGGAATTTTGTTCATAATATTAAGGAAGAGGCAGGGTTCAAGAGGAGCCATGGGG 1241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CACTACGTCTTAGCTGAACGTGACACGCAGCCTGCAGACTCACTGTGGGAAGGAGA 1301
                                                                                                                                                                                                                                                                                                                                                                                              AAGGATAAGCAGCCAATGGATGCCAAGGAGTTCGAACCTAAAGACGTATTGCCCCAATGGG 1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GATGGGACCTACCAGGCCTGGATAACCTTGGCTGTACCCCTGGGGAAGAGCAGAGATAT 1061
                                                                                                                                                                                                                                                                                                                                                                                                                                    541 gcctacctggagaggactgccctgcacagctgcagcagttgctggaggtggggagagt 600
                                                                                                                                                                   ACCACTCTACGGTGTCGGGCCTTGAACTACCCCCGGGAACATCACCATGAAGTGGCTG 941
                                                                                                                                                                                                                                                                                                                               661 accactctacggtgtcgggccttgaactacccccagaacatcaccatgaagtggctg 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCTACCTGGAGAGGGACTGCCCTGCACAGCTGCAGCAGTTGCTGGAGGTGGAGGGGAGAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 5, Application US/08652265
Patent No. 6025130
GENERAL INFORMATION:
GENERAL INFORMATION:
APPLICANT: Thomas, Winston J.
APPLICANT: Freder, John N.
APPLICANT: Ruddy, Denis T.
APPLICANT: Ruddy, David
APPLICANT: Tsuchihashi, Zenta
APPLICANT: Tsuchihashi, Zenta
APPLICANT: Wolff, Roger K.
ITLE OF INVENTION: Hereditary Hemochromatosis Gene
NUMBER OF SEQUENCES: 44
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE: Townsend and Townsend and Crew LLP STREET: Two Embarcadero Center, Eighth Floor STATE: San Francisco STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCTCAAAAAGATTTCCCCA 1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  • ZIP: 94111-3834
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-08-652-265-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1062
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1081
762
                                                                                                                                822
                                                                                                                                                                                                                                                                    882
                                                                                                                                                                                                                                                                                                                                                                                                 942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1242
á
                                                           g
                                                                                                                                ò
                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ç
```

```
298 GTTCACACTCTTGCACTACCTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCT 357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3762 GTTCACACTCTCTGCACTACTCTTCATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   478 AGCIGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            358 IGTITGAAGCTITGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATGATGAGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      418 GCCGTGTGGAGCCCCGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LOCATION: join(361..436, 3762..4025, 4235..4510, 5606..5881, LOCATION: 6040..6153, 7107..7147)

OTHER INFORMATION: /product- "Hereditary Hemochromatosis OTHER INFORMATION: mutation"

OTHER INFORMATION: /note- "Hereditary Hemochromatosis OTHER INFORMATION: gene 24d2 allele"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels 209;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LOCATION: replace(3872, "g")
OTHER INFORMATION: /phenotype= "Hereditary Hemochromatosis
OTHER INFORMATION: /label= 24d2
OTHER INFORMATION: /label= 24d2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               22.3%; Score 321; DB 3; Length 10825; llarity 72.1%; Pred. No. 4.8e-83; Conservative 0; Mismatches 0; Indels 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OTHER INFORMATION: /note= "start and stop positions for OTHER INFORMATION: genomic sequence surrounding variant OTHER INFORMATION: for 24d2(G) allele (SEQ ID NO:42)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OTHER INFORMATION: /note= "start and stop positions for OTHER INFORMATION: genomic sequence surrounding variant OTHER INFORMATION: for 24d1(5) allele (SEQ ID NO:20)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OTHER INFORMATION: /note= "start and stop positions OTHER INFORMATION: 24d2 allele cDNA (SEQ ID NO:11)"
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/652,265
FILING DATE: 23-MAY-1996
                                                                                                                                FILING DATE: 23-MAY-1996
CLASSIFICATION: 514
ATTORNEY/AGENT INFORMATION:
NAME: Smith, William M.
REGISTRATION NUMBER: 30,223
REFRERENCE/DOCKET NUMBER: 17957
TELECOMMUNICATION INFORMATION:
TELEFAX: (415) 576-0200
INFORMATION FOR SED ID NO: 5:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TOPOLOGY: linear
MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH: 10825 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY:
LOCATION: 5507..6023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3852..3891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   140..7319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY: allele
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
Matches 540; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-652-265-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
```

```
q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 рp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                           3942 AGCTGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTA 4001
                                                     4062 CAGAGCTTTTCATCTTTTCATGCATCTTGAAGGAAACAGCTGGAAGTCTGAGGTCTTGTG 4121
                                                                                                                                                                                                              4122 GGAGCAGGGAAGAGGAATTTGCTTCCTGAGATCATTTGGTCCTTGGGGATGGTGG 4181
                                                                                                                                                                                                                                                                                     4182 AAATAGGGACCTATTCCTTTGGTTGCAGTTAACAAGGCTGGGGATTTTTCCAGAGTCCCA 4241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       749 CAGGCAGAACAGGGCCTACCTGGAGAGGGACTGCCCTGCACAGCTGCAGGTTGCTGGA 808
                                                                                                                                                                                                                                                                                                                      CACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAACAGTACCGAGGGCTACTG 628
                                                                                                                                                                                                                                                                                                                                                                                             629 GAAGTACGGGTATGATGGGCAGGACCACCTTGAATTCTGCCCTGACACTGGATTGGAG 688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                689 AGCAGCAGAACCCAGGGCCTGGCCCACCAAGCTGGAGTGGGAAAGGCACAAGATTCGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hereditary Hemochromatosis Gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Thomas, Winston J.
APPLICANT: Thomas, Dennis T.
APPLICANT: Drayna, Dennis T.
APPLICANT: Breder, John N.
APPLICANT: Ruddy, David
APPLICANT: Ruddy, David
APPLICANT: Tsuchilashi, Zenta
APPLICANT: Wolff, Roger K.
TITLE OF INVENTION: Hereditary Hemochromatosis Ge
NUMBER OF SEQUENCES: 44
CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and Townsend and Crew LLP
STREET: Two Embarcadero Center, Eighth Floor
CITY: San Francisco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
APPLICATION NUMBER: US/08/652,265
FILING DATE: 23-MAY-1996
CLASSIFICATION: 514
                                   TGGAAAATCACAACCACAGCAAG--------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              809 GCTGGGGAGAGGTGTTTTGGACCAACAAG 837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 7, Application US/08652265 Patent No. 6025130 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTORNEY/AGENT INFORMATION:
NAME: Smith, William M.
REGISTRATION NUMBER: 30,223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ZIP: 94111-3834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-08-652-265-7
                                   238
                                                                                                        561
                                                                                                                                                                              561
                                                                                                                                                                                                                                                                                                                      569
                                                                                                                                                                                                                                                   561
                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                   Dp
                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŏ
                                                                                                                                       Q
                                                                                                                                                                                                          Db
                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                        ò
 qq
                                   ŏ
                                                                                                      οy
                                                                                                                                                                              δ
```

```
358 TGTTTGAAGCTTTGGGCTACGTGGATGACCAGCTGTTCGTGTTCTATGATGAGAGTC 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               418 GCCGTGTGGGAGCCCCGGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGC 477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   478 AGCTGAGTCAGAGTCTGAAAGGGTGGGATCACATGTTCACTGTTGACTTCTGGACTATTA 537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           298 GIICACACICITCIGCACIACCICITCAIGGGIGCCICAGAGCAGGACCIIGGICITICCI 357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       22.3%; Score 321; DB 3; Length 10825; 72.1%; Pred. No. 4.8e-83; ive 0; Mismatches 0; Indels 209;
                                                                                                                                                                                                                                                                                                                     LOCATION: join(361..436, 3762..4025, 4235..4510, 5606..5881, LOCATION: 6040..6153, 7107..7147)

OTHER INFORMATION: /product= "Hereditary Hemochromatosis OTHER INFORMATION: and 2442 mutations"

OTHER INFORMATION: /note= "Hereditary Hemochromatosis OTHER INFORMATION: /note= "Hereditary Hemochromatosis (HH) OTHER INFORMATION: gene containing a combination of both
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COTTON: Teplace(5834, "a")
COTHER INFORMATION: /phenotype= "Hereditary Hemochromatosis OTHER INFORMATION: /phenotype= "Hereditary Hemochromatosis OTHER INFORMATION: /label= 24d1
US-08-652-265-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LOCATION: replace(3872, "g")
OTHER INFORMATION: /phenotype= "Hereditary Hemochromatosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note= "Hereditary Hemochromatosis (HH)
gene containing a combination of both
24d1 and 24d2 alleles"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note= "start and stop positions for cDNA containing a combination of both 24d1 and 24d2 alleles (SEQ ID NO:12)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LOCATION: 3852..3891

OTHER INFORMATION: /note= "start and stop positions for

OTHER INFORMATION: genomic sequence surrounding variant

OTHER INFORMATION: for 24d2(G) allele (SEQ ID NO:42)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note= "start and stop positions for
genomic sequence surrounding variant
for 24d1(A) allele (SEQ ID NO:21)"
REFERENCE/DOCKET NUMBER: 17957-000500 TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 576-0200
ITELEPHONE: (415) 576-0300
INFORMATION FOR SEQ ID NO: 7:
SEQUENCE CHARACTERISTICS:
LENGTH: 10825 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /label= 24d2
                                                                                                                                                                                                                                 TOPOLOGY: linear MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity 72.1
Matches 540; Conservative
                                                                                                                                                                                                            single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY:
LOCATION: 140..7319
OTHER INFORMATION: /r
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5507..6023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OTHER INFORMATION:
OTHER INFORMATION:
OTHER INFORMATION:
                                                                                                                                                                                  nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OTHER INFORMATION:
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OTHER INFORMATION:
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OTHER INFORMATION:
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY: allele
LOCATION: replace
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY: allele
                                                                                                                                                                                                                                                                                                             NAME/KEY: CDS
                                                                                                                                                                                                         STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURE:
NAME/KEY:
```

;

ACTATTA 4001	095	AGGTTGT 4061	560	TCTTGTG 4121	099	ATGGTGG 4181	AGTCCCA 568		GCTACTG 628		ATTGGAG 688	  ATTGGAG 4361	TTCGGGC 748	  TTCGGGC 4421	TGCTGGA 808	 TGCTGGA 4481		
TO CONTRACT TO CONTRACT TO CACAL CACAL CACAL TO THE CACAL TO THE CACAL TAIL A	TGGAAAATCACAACACAAGA	TGGAAAATCACAACCACAGCAAGGGTATGTGGAGAGGGGGCCTCACCTTCCTGAGGTTGT		CAGAGCTTTTCATCTTTCATGCATCTTGAAGGAAACAGCTGGAAGTCTGAGGTCTTGTG		GGAGCAGGGAAGAGGAAGGAATTTGCTTCCTGAGATCATTTGGTCCTTGGGGATGGTGG	GAGTCCCA	 4182 aaatagggacctattcctttggttgcagttaacaaggctggggattttccagagtccca	CACCCTGCAGGTCATCCTGGGCTGTGAAATGCAAGAAGACAATACCGAGGGCTACTG	CACCCTGCAGGTCATCCTGGGCTGTGTATGTTTTTTTTTT	GAAGTACGGGTATGATGGGCAGGACCACCTTGAATTCTGCCCTGACACACAC	GAAGTACGGGTATGATGGCGGCAGGACCACCTTGAATTCTGCCCTGACACACTGGATTGGAG	<b>AGCAGCAGAACCCAGGGCCTGGCCCACCAAGCTGGAGTGGGAAAGGCACAAGA</b>	AGCAGCAGAACCCAGGGCCTGGCCCACCAAGCTGGAGTGGGAAAGGCACAAGATTCGGGC	PAGGCAGAACAGGGCCTACCTGGAGAGGGACTGCCCTGCACAGCTGCAGCAGT	CAGGCAGAACAGGGCCTACCTGGAGAGGGACTGCCTGCACAGCTGCAGCAGTTGCTGGA	GCTGGGGAGAGGTGTTTTGGACCAACAAG 837	GCTGGGGAGAGGTGTTTGGACCAACAAG 4510
	538	4002	561	4062	561	4122	561	4182	569	4242	629	4302	689	4362	749 (	4422 (	809	4482 (
	ογ	QQ	ογ	qo	οy	QQ	ογ	Q Q	δ	QQ	ŏ	QQ	οy	g	δλ	q	ογ	QQ

Search completed: June 19, 2002, 08:40:57 Job time: 7342 sec

ч

Scoring table:

Sequence:

Searched:

Database

Result

OM nucleic

Run on:

```
292910 Homo sapien

AR036572 Sequence

AR036574 Sequence

AR03674 Sequence

Brown Homo sapients

AR011592 Dicercs bands

AR073212 Homo sapients

AR073212 Homo sapients

AR073212 Homo sapients

AR073212 Homo sapients

AR073313 Homo sapients

AR060838 Homo sapients

AR060838 Homo sapients

AR060838 Homo sapients

AR060838 Homo sapients

AR015606 Homo sapients

AR015606 Homo sapients

AR015608 Homo sapients

AR016605 Homo sapients

AR016605 Homo sapients
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PAT 16-MAY-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                               Diceros b
Homo sapi
Homo sapi
Homo sapi
Human DNA
Homo sapi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapi
Human DNA
                                AR117790 Sequence
AR117791 Sequence
AR117792 Sequence
AR149459 Sequence
AR149460 Sequence
AR149461 Sequence
AR149461 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapi
Homo sapi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Human DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SM Unknown.
Unclassified.
Unclassified.
SE 1 (bases 1 to 10825)
RS Thomas, W.J., Drayna, D.T., Feder, J.N., Gnirke, A., Ruddy, D., Tsuchihashi, Z. and Wolff, R.K.
Tsuchihashi, Z. and Holff, R.K.
Hereditary hemochromatosis gene products
NAL Patent: US 6140305-A 1 31-OCT-2000;
ES Location/Qualifiers
Ource /organism="unknown"
2998 a 2253 c 2648 g 2926 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AJ009615 F
AC069317 F
AC01864 A
AC015922 A
AC013617 F
AC013617 F
AC06715 F
AC01655 F
AC016877 F
AC016897 F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AL591222 HAC013475 HAC013475 HAC013475 HAC157373 HAC008917 HACO08917 HACO089
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 10825;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%; Score 301;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AR117789 10825 bp
Sequence 1 from patent US 6140305.
AR117789
      AR117799

AR117790

AR117791

AR117791

AR149460

AR1494601

AR1494601

AR149461

AR1494601

AR1494601

AR1494601

AR130577

AR035573

AR037373

AR015922

AR01605

AR01737

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AR117789.1 GI:14098695
1000.0 10825
1000.0 10825
1000.0 10825
1000.0 10825
1000.0 10825
1000.0 10825
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
1000.0 246240
10000.0 246240
10000.0 246240
10000.0 246240
10000.0 246240
10000.0 246240
10000.0 246240
10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Unknown.
                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
AR117789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
             LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    υ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    00
                                                                                                                                                                                                     June 19, 2002, 08:40:02; Search time 1828.83 Seconds (without alignments) 3444.217 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                     1 GGCACGGAATCCCTGGTTGG......GCACTTTGGGAGGCCGAGGC 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Description
                          4.5
Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1797656 seqs, 10463268293 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                   US-09-497-957-3_COPY_4570_4870
301
                             GenCore version
Copyright (c) 1993 - 2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                    nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IDENTITY_NUC Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         em_htg_inv:*
em_htg_other:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GenEmbl:*

1: gb_ba:*

2: gb_httg:*

3: gb_on:*

3: gb_on:*

3: gb_pt:*

3: gb_pt:*

3: gb_pt:*

3: gb_pt:*

3: gb_pt:*

3: gb_on:*

3: gb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        em_htg_hum:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query
Match Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   em_in:
em_mu:*
em_om:*
em_or:*
em_pat:*
em_pl:*
em_pl:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               em_sts:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                em_un:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Total number of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score
                                                                                                                                                                                                                                                                                                                                                                          Perfect score:
```

õ

ò

õ

ò

```
ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PAT 16-MAY-2001
                                                                                              PAT 16-MAY-2001
                                                                                                                                                                                                                                                                                                                                                                                          4630 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 4689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4810 AATGTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG 4869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121 CACAAGTCATGGGTTTAATTTCTTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       300
                                                                                                                                                                                                                                                                                                                                                                                                                                          61 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 120
                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       241 AATGTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Unclassified.

1 (bases 1 to 10825)

Thomas,W.J., Drayna,D.T., Feder,J.N., Gnirke,A., Ruddy,D.,
Tsuchihashi,Z. and Wolff,R.K.
Hereditary hemochromatosis gene products
Patent: US 6140305-A 7 31-OCT-2000;
                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                            Length 10825;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                linear
                                                                                                                                                                                                                                                                                                                                           Query Match 100.0%; Score 301; DB 6; Best Local Similarity 100.0%; Pred. No. 1.2e-76; Matches 301; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNA
                                                                                                 DNA
                                                                                                                                                                                                                                                                                              4
                                                                                              AR117791 10825 bp
Sequence 5 from patent US 6140305.
AR117791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 7 from patent US 6140305.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                             /organism="unknown"
2252 c 2649 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AR117792.1 GI:14098698
                                                                                                                                  AR117791.1 GI:14098697
                                                                                                                                                                        Unknown.
Unclassified.
                                                                                                                                                                                                                                                                                                ಡ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Unknown.
                                                                                                                                                                                                                                                                                              2998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Unknown.
                                                                                                                                                            Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4870 C 4870
                                     4870 C 4870
              301 C 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301 C 301
                                                                                                                                                                                                                                                                        source
                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                              BASE COUNT
ORIGIN
                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                 TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
FEATURES
                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
AR117792
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
                                                                         RESULT
AR117791
                                                                                                                                    VERSION
KEYWORDS
                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                            SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                   a
                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
               ò
              ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                      PAT 16-MAY-2001
                                                                                                                                                                                                                                 4630 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACTTATAATTGAGATGTATGAGACAC 4689
                                                                                                                                                  4570 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGCCTCTCCCAAATTC 4629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4690 CACAAGICAIGGGITIAATITICITITICICCAIGCAIAIGGCICAAAGGGAAGIGICIAIG 4749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121 CACAAGTCATGGGTTTAATTTCTTTTCTCCATGCATATGGCTCAAGGGAAGTGTCTATG 180
                                                                                                                                                                                   GCCCTTGCTTTTTTTTTAACCAATAATCTTTTGTATATTTTATACCTGTTAAAAATTCAGA 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCCCTTGCTTTTTATTTTAACCAATAATCTTTTGTATATTTTATACCTGTTAAAAATTCAGA 240
                                                                                     TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 120
                                                                                                                                     121 CACAAGTCATGGGTTTAATTTCTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATG 180
              Gaps
                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGTCTCCTCTCCAAATTC 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 (bases 1 to 10825)
Thomas,W.J., Drayna,D.T., Feder,J.N., Gnirke,A., Ruddy,D., Tsuchihashi,Z. and Wolff,R.K.
Hereditary hemochromatosis gene products
Patent: US 6140305-A 3 31-OCT-2000;
Location/Qualifiers
               .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 10825;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
               Indels
                                                                                                                                                                                                                                                                                                                                                                       linear
No. 1.2e-76;
natches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               100.0%; Score 301; DB 6;
100.0%; Pred. No. 1.2e-76;
ive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                       DNA
            Mismatches
                                                                                                                                                                                                                                                                                                                                                               Sequence 3 from patent US 6140305.
AR117790.1 GI:14098696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2926
  Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="unknown"
2253 c 2647 g
            0;
100.0%;
 Best Local Similarity 100.
Matches 301; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches 301; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                            Unknown.
Unclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ø
                                                                                                                                                                                                                                                                                                                                                                                                                               Unknown.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2999
                                                                                                                                                                                                                                                                                                          4870
                                                                                                                                                                                                                                                                                  C 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local
                                                                                                                                                                                                                                                                                                         Ö
                                                                                                                                                                                                                                                                                                                                                                                                                  KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
                                                                                     61
                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                          4870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                       AR117790
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        쉽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                            g
                                                                                                          g
                                                                                                                                                           a
                                                                                                                                                                                                                                                                                   ô
```

PAT 08-AUG-2001

DNA

3

```
4630 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 4689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4810 AATGTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG 4869
                                                                                                                                                                                                                                                                                                                                      1 (bases 1 to 10825)
Thomas,W.J., Drayna,D.T., Feder,J.N., Gnirke,A., Ruddy,D.,
Tsuchihashi,Z. and Wolff,R.K.
Method for determining the presence or absence of a hereditary
hemochromatosis gene mutation
Patent: W6 228854-A 3 08-MAY-2001;
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGCCTCTCCAAATTC 60
                                                                     61 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   241 AATGTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
100.0%; Score 301; DB 6;
Best Local Similarity 100.0%; Pred. No. 1.2e-76;
Matches 301; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 5 from patent US 6228594.
AR149461
AR149461.1 GI:15114052
                                                                                                                                                                                                                         AR149460 10825 bp
Sequence 3 from patent US 6228594,
AR149460.1 GI:15114051
                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="unknown"
2253 c 2647 q
                                                                                                                                                                                                                                                                                                                                                                                                                                         .10825
                                                                                                                                                                                                                                                                                                            Unknown.
Unclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2999 a
                                                                                                                                                                                                                                                                                               Unknown
                                                                                                                                                        4870 C 4870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4870
                                                                                                                            301 C 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C 301
                                                                                                                                                                                                                                      DEFINITION
ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       U
                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
                 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                               RESULT
AR149460
                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4870
                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
AR149461
LOCUS
                                                                                                                                                                                                                                                                                  KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORIGIN
                                                                                                                                                                                                                           LOCUS
                                        g
                                                                     Q
                                                                                              qq
                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ă
                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PAT 08-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                  4570 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGCCCTCTCCAAATTC 4629
                                                                                                                                                                                                         4630 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 4689
                                                                                                                                                                                                                                                               4690 CACAAGTCATGGGTTTAATTTCTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATG 4749
                                                                                                                                                                                                                                                                                                                    4750 GCCCTTGCTTTTTATTTAACCAATAATCTTTTGTATATTTATACCTGTTAAAAATTCAGA 4809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4810 AATGTCAAGGCGGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG 4869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                240
                                                                                                                                                                                         TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 120
                                                                                                                                                                                                                                                CACAAGTCATGGGTTTAATTTCTTTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Unclassified.

1 (bases 1 to 10825)
1 Thomas W.J., Drayna, D.T., Feder, J.N., Gnirke, A., Ruddy, D., Tromas W.J., Drayna, D.T., Feder, J.N., Gnirke, A., Ruddy, D., Tsuchihash, Z. and Wolff, R.K.

Method for determining the presence or absence of a hereditary hemochromatosis gene mutation hemochromatosis gene mutation Patent: US 6228594-A 1 08-MAY-2001;

Location/Qualifiers
1. 10825
                                                                                                                                                                                                                                                                                                                                                             AATGTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61 TGGGAAGGGACTITCTCAATCCTAGAGTCTCTAACCTTATAATTGAGATGTATGAGACAGC 120
                                                                                                                                  1 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGCCTCTCCAAATTC 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9
                                                                                                                                                                                                                                                                                                      GCCCTTGCTTTTTATTTAACCAATAATCTTTTGTATATTTATACCTGTTAAAAATTCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGCCTCTCCAAATTC
                                                                                                              ó;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ó
                                                                                  Length 10825;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 10825;
                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                               Score 301; DB 6;
Pred. No. 1.2e-76;
Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ouery Match 100.0%; Score 301; DB 6; Best Local Similarity 100.0%; Pred. No. 1.2e-76; Matches 301; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ų
                           2926
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 1 from patent US 6228594.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2926
           /organism="unknown"
2252 c 2648 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2648 g
                                                                                                           ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AR149459.1 GI:15114050
                                                                               100.0%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2253 c
                                                                                                           Matches 301; Conservative
                                                                                            Similarity
                          ้ส
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ø
                          2999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Unknown.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Unknown.
                                                                                                                                                                                                                                                                                                                                                                                                                                              4870 C 4870
                                                                                                                                                                                                                                                                                                                                                                                                                   C 301
                                                                              Query Match
Best Local
source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                        BASE COUNT
ORIGIN
                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                               241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
AR149459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORIGIN
                                                                                                                                     ŏ
                                                                                                                                                              g
                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                       qq
                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                           q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
```

ö

ó

Length 10825; Indels PAT 08-AUG-2001

linear

DNA

```
source
                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    exon
                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                         VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                                     HSHFE
                                                                                                                          qq
                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                              δ
                                        ò
                                                                  g
                                                                                                δ
                                                                                                                                                           ò
                                                                                                                                                                                     셤
                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PAT 08-AUG-2001

        241
        AATGTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG
        300

        4810
        AATGTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG
        4869

                                                                                                                                                                                                                                                                                                           4570 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGCCTCTCCCAAATTC 4629
                                                                                                                                                                                                                                                                                                                                                                     4630 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 4689
                                                                                                                                                                                                                                                                                                                                                                                                                                1 (bases 1 to 10825)
Thomas W.J., Drayna, D.T., Feder, J.N., Gnirke, A., Ruddy, D.,
Thomas W.J., Drayna, D.T., Feder, J.N., Gnirke, A., Ruddy, D.,
Tsuchihashi, Z. and Wolff, R.K.
Method for determining the presence or absence of a hereditary
hemochromatosis gene mutation
hemochromatosis gene mutation
Patent: US 6228594-A 5 08-MAY-2001;
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                     TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 120
                                                                                                                                                                                                                                                                                                                                                                                                               121 CACAAGTCATGGGTTTAATTTCTTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCCTTGCTTTTTATTTAACCAATAATCTTTTGTATATTTTATACCTGTTAAAAATTCAGA 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              absence of a hereditary
                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 (bases 1 to 10825)
Thomas,W.J., Drayna,D.T., Feder,J.N., Gnirke,A., Ruddy,D., Tsuchhhash1,2. and Wolff,R.K.
Method for determining the presence or absence of a heredith hemochromatosis gene mutation
Patent: US 6228594-A 7 08-MAY-2001;
                                                                                                                                                                                                                                                                                             1 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGCCTCTCCAAATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .
0
                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 10825;
                                                                                                                                                                                                                                  Length 10825;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                linear
                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                 100.0%; Score 301; DB 6;
100.0%; Pred. No. 1.2e-76;
cive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity 100.0%; Pred. No. 1.2e-76;
Matches 301; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ų
                                                                                                                                                                         ¥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2926
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 7 from patent US 6228594.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="unknown"
2252 c 2648 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                        /organism="unknown"
2252 c 2649 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AR149462.1 GI:15114053
                                                                                                                                             .10825
                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Unclassified.
                          Jnclassified.
                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ø
                                                                                                                                                                         2998 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Unknown.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Unknown.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2999
Unknown
               Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4870 C 4870
                                                                                                                                                                                                                                                  Best Local Sin
Matches 301;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         C 301
                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
ORIGIN
                                                                                                                                              source
                                                                                                                                                                          BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         301
                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
AR149462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VERSION
KEYWORDS
                                        REFERENCE
                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                FEATURES
                                                                                   TITLE
                                                                                                                                                                                       ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
```

1 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGCCTCTCCAAATTC 60

ò

```
/db_xref="SWISS-PROT:030201"
/db_xref="SWISS-PROT:030201"
/translation="MGPRARPALLLIMILOTAVLOGRLLRSHSLHYLFWGASEODLGL
SEEALGYVDOQLFVPTOPUSERVEPWEVSTRISSOMMLOLSOSLKGWDHWFTVDF
WITHENHNISKESHTLOVILGCEMOEDNSTECYWKYGYDGOPHLEFCPPTLDWRAAEP
RAWPTKLEWBRHKIRARQNRAYLERDCPAQLQOLLELGRGVLDQQVPPLVKYTHHVTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRI 23-JUL-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Submitted (14-MAR-1997) Albig W., Georg-August-Universitaet
Goettingen, Biochemie und Molekulare Zelibiologie, Humboldtallee
23, Goettingen, FRG, 31073
Location/Qualifiers
                                                                                                                                                                                  4749
                                                                                                                                                                                                                            240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .4915,5125. .5400,6494. .6769,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        l (bases 1 to 858)
Albig,W., Drabat,B. Burmester,N., Bode,C. and Doenecke,D. The haemochromatosis candidate gene HFE (HLA-H) of man and located in syntenic regions within the histone gene cluster 98208340
                                                                                                                                                                                                                                                                                                          241 AATGTCAAGGCCGGGCACGGTGGCTCACCCTGTAATCCCAGGACTTTGGGAGGCCGAGG
121 CACAAGTCATGGGTTTAATTTCTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATG
                                                                                                                                                                                                                            181 GCCCTTGCTTTTTATTTAACCAATAATCTTTTGTATTTTATACCTGTTAAAAATTCAGA
                                                             TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /function="iron metabolism"
/note="haemochromatosis candidate gene"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /clone="ICRFy901D1223"
/clone_lib="ICRF YAC-library"
1028. 1324
/gene="HFE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /protein_id="CAB07442.1"
/db_xref="GI:1890180"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1. .12146
/organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12146 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              haemochromatosis; HFE gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens HFE gene.
Z92910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2 (bases 1 to 12146)
Albig, W.
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1028. .10637
/gene="HFE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Z92910.1 GI:1890179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /number=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      human.
                                                                                                                                                                                                                                                                                                                                                                                                                                         4870 C 4870
                                                                                                                                                                                                                                                                                                                                                                                                  301 C 301
```

```
PAT 29-SEP-1999
                                                                                                                                                                                                                                                                             PAT 29-SEP-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QY 181 GCCTTGCTTTTTATTTAACCAATAATCTTTGTATATTATACCTGTTAAAATTCAGA 240
DD 197053 GCCTTGCTTTTTATTTAACCAATAATCTTTTGTATATTAAACCTGTTAAAATTCAGA 197112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Db 197113 AATGTCAAGGCGGGCACGGTGGCTCACCCTGTAATCCCAGCACTTTGGGAGGCCGAGG 197172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DD 196873 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGCTCTCTCCAAATTC 196932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Db 196933 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATAGAGACGC 196992
                                                                                                                                                                                                                                                                                                                                                                                    Unclassified.

(ncases 1 to 246240)

(ncases 1 to 246240)

Feder, J.Nathan., Kronmal, G.Scott., Lauer, P.M., Ruddy, D.A.,

Thomas, W., Tsuchihashi, Z. and Wolff, R.K.

Megabase transcript map: novel sequences and antibodies thereto

Patent: US 5872237-A 20 16-FEB-1999;

Location/Qualifiers
                                                                                                                                        5759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGTCCCCAAATTC 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             241 AATGTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG
   5700 AATGTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG
                                                 GCCCTTGCTTTTTATTTAACCAATAATCTTTTGTATTTTATATACCTGTTAAAAATTCAGA
                                                                                                           241 AATGICAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCCAGCACTTTGGGAGGCCGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 246240;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    linear
                                                                                                                                                                                                                                                                                 linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%; Score 301; DB 6;
100.0%; Pred. No. 1.4e-76;
ive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DNA
                                                                                                                                                                                                                                                                                 DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="unknown"
73211 a 50177 c 50599 g 72252 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          246240 bp 1
Sequence 21 from patent US 5872237.
AR036573.1 GI:5953241
                                                                                                                                                                                                                                                                 AR036572 246240 bp C
Sequence 20 from patent US 5872237.
AR036572
                                                                                                                                                                                                                                                                                                                          AR036572.1 GI:5953240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       al Similarity 100.
301; Conservative
                                                                                                                                                                                                                                                                                                                                                           Unknown.
                                                                                                                                                                                                                                                                                                                                                                           Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Db 197173 C 197173
                                                                                                                                                                                                       5760 C 5760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C 301
                                                                                                                                                                          301 C 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local S
Matches 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LOCUS
DEFINITION
ACCESSION
VERSION
                                                                                                                                                                                                                                                                                              DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                    10
                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
JOURNAL
                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               301
                                                                                                                                                                                                                                                                                                                              VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AR036573
                                                                                                                                                                                                                                                                  AR036572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                     RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                              qq
                                                                                                                                        QQ
                                                                                                                                                                                                    qq
                                                   δ
                                                                                                             δ
                                                                                                                                                                           ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ó
SVTTLRCRALNYYPQNITMKWLKDKQPMDAKEFEPKDVLPNGDGTYQGWITLAVPPGE
BORYTCOVEHPGLDQPLIVIWEPSPSGTLVIGVISGIAVFVVILFIGILFIILRKRQG
SRGAMGHYVLAERE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5460 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGCTGTCCTCTCCCAAATTC 5519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121 CACAAGTCATGGGTTTAATTTCTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGCCTCTCCAAATTC 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5520 TGGGAAGGGACTTTCTCACATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ó;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 12146;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100.0%; Score 301; DB 9; 100.0%; Pred. No. 1.2e-76;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2911 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /rpt_family="Alu"
9051. .10205
/gene="HFE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           rpt_family="Alu"
.0206. .10637
'gene="HFE"
                                                                                                                                                                        'rpt_family="Alu"
(652. .4915
'gene="HFE"
                                                                                                                                                                                                                                                                                                                                                                                                        /rpt_family="Alu"
6494. .6769
/gene="HFE"
                                                                                                                             /rpt_family="Alu"
3973. .4283
/gene="HFE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10617. .10622
/gene="HFE"
a 2474 c 291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            957. .10239
'gene="HFE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /number=6
9017. .9340
/gene="HFE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /number=4
6928. .7041
/gene="HFE"
/number=5
7042. .7994
/gene="HFE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /number=5
7995. .9050
/gene="HFE"
                                                                                 /number=1
3494. .3735
/gene="HFE"
                                                                                                                                                                                                                                                                                  5125. .5400
/gene="HFE"
                                                                                                                                                                                                                                                                                                                              5401. .6493
/gene="HFE"
                                                                                                                                                                                                                                                                                                                                                            /number=3
5707. .6005
/gene="HFE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                     /number=4
6770. .6927
/gene="HFE"
                                                   1325. .4651
/gene="HFE"
                                                                                                                                                                                                                                       4916. .5124
/gene="HFE"
                                                                                                                                                                                                                                                                       'number=2
                                                                                                                                                                                                                                                                                                                  number=3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'number=6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'number=7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity 100.
Matches 301; Conservative
                                                                                                                                                                                                                          number=2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         polyA_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_unit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_unit
                                                                                                                                                                                                                                                                                                                                                                            repeat_unit
                                                                                                   repeat_unit
                                                                                                                                               repeat_unit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               intron
                                                                                                                                                                                                                                                                                                                                 intron
                                                      intron
                                                                                                                                                                                                                                        intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             exon
                                                                                                                                                                                                                                                                                                                                                                                                                           exon
                                                                                                                                                                                                                                                                                     exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORIGIN
```

ద ŏ a ŏ

ò

ó

```
196873 GGCACGGAATCCCTGGTTGGAGTTCAGAGGTGGCTGAGGCTGTGTGCCTCTCCCAAATTC 196932
                                                                                                                                                                                                                                                                                                                                                                                                                                     HSU91328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              97294057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9149941
                                                                                                                                                                                                                                                                                                                                                Db 197173 C 197173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                301 C 301
                                                                                                                                                                                                                                                                                                                                                                                               RESULT 13
HSU91328/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                   LOCUS
                                                                 q
                                                                                                     ÓΫ
                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                δŏ
                                                                                                                                                                                                                                                                                                                .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PAT 29-SEP-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                             Db 196873 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGCTCTCCCAAATTC 196932
                                                                                                                                                                                                                                                                                                                                                                                                                              Db 196933 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 196992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Db 196993 CACAAGTCATGGGTTTAATTTCTTTTCTCCATGCATATGGCTCAAAGGAAGTGTCTATG 197052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Db 197053 GCCCTTGCTTTTATTTAACCAATAATCTTTTGTATATTATACGGGTTAAAAATTCAGA 197112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Db 197113 AATGTCAAGGCCGGGCACGGTGGCTCACCCTGTAATCCCAGCACTTTGGGAGGCCGAGG 197172
                                                           1 (bases 1 to 246240)
Feder, J.Nathan., Kronmal, G.Scott., Lauer, P.M., Ruddy, D.A.,
Thomas, W., Tsuchihashi, Z. and Wolff, R.K.
Megabase transcript map: novel sequences and antibodies thereto
Patent: US 5872237 - A 21 16-FEB-1999;
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 (bases 1 to 246240)
Feder, J.Nathan., Krommal, G.Scott., Lauer, P.M., Ruddy, D.A.,
Foder, J.Nathan., Z. and Wolff, R.K.
Megabase transcript map: novel sequences and antibodies thereto
Patent: US 5872237-A 22 16-FEB-1999;
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                              61 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121 CACAAGICAIGGGITIAATITCTITTTCTCCAIGCAIAIGGCTCAAAGGGAAGTGTCTAIG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     241 AATGTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG 300
                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                         1 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGTCCCTCTCCCAAATTC 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGCCTCTCCAAATTC 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181 GCCCTTGCTTTTTTTTAACCAATAATCTTTTGTATATTTTATACCTGTTAAAATTCAGA
                                                                                                                                                                                                                                                                                                              .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                        Length 246240;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 246240;
                                                                                                                                                                                                        others
                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                    Query Match 100.0%; Score 301; DB 6; Best Local Similarity 100.0%; Pred. No. 1.4e-76; Matches 301; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100.0%; Score 301; DB 6;
100.0%; Pred. No. 1.4e-76;
iive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DNA
                                                                                                                                                                                 /organism="unknown"
50177 c 50599 g 72252 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="unknown"
| 50177 c 50599 g 72252 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   246240 bp L
Sequence 22 from patent US 5872237.
AR036574.1 GI:5953242
                                                                                                                                                                    1. .246240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity 100.0
Matches 301; Conservative
                                           Unclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Unclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                   73211 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unknown.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           73211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Db 197173 ¢ 197173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        301 C 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ouery Match
                                                                                                                                                                    Source
                           ORGANISM
                                                                                                                                                                                                   BASE COUNT
                                                                                                              TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
                                                             REFERENCE
                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AR036574
                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VERSION
                                                                                                                                                                                                                     ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORIGIN
                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
```

```
Homo sapiens
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalla; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 246882)
Ruddy,D.A., Kronmal,G.S., Lee,V.K., Mintier,G.A., Quintana,L.,
Domingo,R. Jr., Meyer,N.C., Irrinki,A., McClelland,E.E., Fullan,A.,
Mapa,F.A., Moore,T., Thomas,W., Loeb,D.B., Harmon,C.,
Tsuchihashi,Z., Wolff,R.K., Schatzman,R.C. and Feder,J.N.
A 1.1-Mb transcript map of the hereditary hemochromatosis locus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRI 17-DEC-2001

      QY
      241 AATGTCAAGGCCGGGCCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCCGAGG 300

      DD
      197113 AATGTCAAGGCCGGGCCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG 197172

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human hereditary haemochromatosis region, histone 2A-like protein gene, hereditary haemochromatosis (HLA-H) gene, RoRet gene, and sodium phosphate transporter (NPT3) gene, complete cds.
                                   196933 IGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 196992
                                                                                                                                                                                                                                                                                                    Db 197053 GCCCTTGCTTTTTATTTAACCAATAATCTTTTGTATATTTATACCTGTTAAAAATTCAGA 197112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ruddy,D.A., Kronmal,G.S., Lee,V.K., Mintier,G.A., Quintana,L.,
Ruddy,D.A., Kronmal,G.S., Lee,V.K., Mintier,G.A., Quintana,L.,
Domingo,R. Jr., Meyer,N.C., Irrinke,A., McClelland,E., Fullan,A.,
Mapa,F.A., Moore,T., Thomas,W., Loeb,D.B., Harmon,C.,
Tsuchihashi,Z., Wolff,R.K., Schatzman,R.C. and Feder,J.N.
Direct Submission
Submitted (26-FEB-1997) Sequencing, Mercator Genetics, 4040
Campbell Avenue, Menlo Park, CA 94025, USA
                                                                                                                                                                     121 CACAAGTCATGGGTTTAATTTCTTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATG
61 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC
                                                                                                                                                                                                                                                                     GCCCTTGCTTTTTATTTAACCAATAATCTTTTGTATATTTATACCTGTTAAAAATTCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /db_xref="taxxn:960pt;"
/db_xref="taxxn:960pt;"
/clone="pac222k22; pac75114; bac132a2"
complement(1231. .1501)
/rpt_family="Alu"
/rpt_family="Alu"
3528. .3676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
1. .246282
/organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /rpt_family="Alu"
/rpt_type=dispersed
complement(5496..5780)
/rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  246282 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /rpt_family="Alu"
/rpt_type=dispersed
6032. .6461
/rpt_family="Alu"
/rpt_type=dispersed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /rpt_type=dispersed
4056. .4304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /rpt_family="MER3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 U91328.1 GI:2088550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
```

			/rpt_family="Alu" /rpt_type=dispersed 1 41581. 42114				/rpt_family="Alu" /rpt_type=disperse	00007 07027 20027 22077	n(40833408/3,4/62/4/340,40033. 4995550218,5354353618))	/codon_zerrt_1 /product="hereitary hemochromatosis" /protein_id="AABB2083.1" /protein_id="AABB2083.1"	/db_xrei="G1:2088331" /traslation="MGPRAFALLLAMILQTAVLQGRILRSHSLHYLFMGASEQDLGL g1:pan_cvvnnot prupungeopvnpeppbwvscg1sG0MMIO1.G0S1.KGMPHMFTVDF	WIT IMENINHESK ESHITLOY LIGGENGEDNATE GETWEN GOOD HEEFENDE LIDWIN AAB RAWPIT IMENINHESK ESHITLOY LIGGENGEDNATE GETWEN GOOD HEEFENDE LIDGENGED HEEFENDE GOOD					/rpt_family="Alu" /rpt_type=dispersed						/rpt_family="Alu" /rpt_type=dispersed 5818 5848		n 5867258900 /rpt_family="Alu"		
repeat_region	repeat_region	repeat_region	repeat_region	repeat_region	repeat_region	יייייייייייייייייייייייייייייייייייייי	1	auab	CDS					repeat_region	repeat_region	repeat region		repeat_region	repeat_region	repeat_region	repeat_region	repeat region	acinor teoror		repeat_region	repeat_region	repeat_region
8203 .8463 /rpt_family="Alu" /rpt_type-dispersed			, ,						/rpt_family="Alu" /rpt_type=dispersed complement(1545015714)	/rpt_tamily="Alu" /rpt_type=dispersed complement(1643416826)	/codon_start=1 /product="histone 2A-like protein"	/protein_ind="AABBAUBB.1" /db_xref="EG1:2088554" /translation="MSGRGKQGKARAKSRSSRAGLQFPVGRVHRLLRKGNYAERV	GAGAPVYLAAVLEYLTAEILELAGNAARDNKKTRIIPRHLQLAIRN IAQGGVLDNIQAVLLPKKTESHHKAKGK" comniamatiibaba								/rpt_type=dispersed 1 31223. 31507 /rpt_family="Alu"				/rpt_family="Alu" /rpt_type=disperse		
repeat_region	repeat_region	repeat_region	repeat_region	repeat_region	repeat_region	repeat_region	repeat_region	repeat_region	repeat_region	CDS			not nor teader	repear_region	repeat_region	repeat_region	repeat region		repeat_region	repeat_region	repeat_region	repeat_region	repeat_region	noiser teorer	repear_regroup	repeat_region	repeat_region

õ

ó g ò g ò g ò g ò

```
misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AL359892 193752 bp DNA linear HTG 13-JUN-2001 Homo sapiens chromosome 6 clone RP11-557F22, *** SEQUENCING IN PROGRESS ***, 18 unordered pieces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens
Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 193752)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Center project rane: bA557F22
Assembly program: X6AP4; version 4.5
Assembly program: X6AP4; version 4.5
Sequencing vector: plasmid; L08752; 100% of reads
Chemistry: Dye-terminator Big Dye; 100% of reads
Consensus quality: 183925 bases at least Q40
Consensus quality: 189658 bases at least Q30
Insert size: 192052; sum-of-contigs
Insert size: 192052; sum-of-contigs
Insert size: 19847; agarrose-fp
Quality coverage: 3.80x in Q20 bases; sum-of-contigs Quality
coverage: 3.70x in Q20 bases; agarose-fp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Submitted (12-JUN-2001) Sanger Centre, Hinxton, Cambridgeshire, CB10 1SA, UK. E-mail enquiries: humquery@sanger.ac.uk Clone requests: clonerequest@sanger.ac.uk
On Aug 27, 2000 this sequence version replaced g1:9864230.
                                                                                                                                                                                                                                                                            61 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 120
                                                                                                                                                                                                                                                                                                                                                   CACAAGTCATGGGTTTAATTTCTTTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATG 180
                                                                                                                                                                                                                                                                                                                                                                                                                          GCCCTTGCTTTTTATTTAACCAATAATCTTTTGTATTTTATACCTGTTAAAAATTCAGA 240
                                                                                                                                                                                                     1 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGCCTCTCCAAATTC 60
                                                                                                                                                                          Gaps
                                                                                                                                      Length 246282;
                                                                                                                                                                        0;
                                                                                                                                                                      Indels
                                                                                                                                                                      ;
0
                                                                                                                                  Score 301; DB 9;
Pred. No. 1.4e-76;
                                                                                                                                                                    0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AL359892
AL359892.5 GI:9930971
HTG: HTGS_PHASE1; HTGS_CANCELLED.
/rpt_family="LTR2"
/rpt_type=dispersed
66764. 67053
/rpt_family="Alu"
/rpt_type=dispersed
67743. 68016
                                                                                                                                100.0%;
100.0%;
                                                                                                                                                                 Matches 301; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    code: SC
                                                                                                                                                 Similarity
                                        repeat_region
                                                                                            repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sims, S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        49110 C 49110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301 C 301
                                                                                                                                                 Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 14
AL359892/c
                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOURCE
```

```
NOTE: This is a 'working draft' sequence. It currently consists of 18 contigs. The true order of the pieces is not known and their order in this sequence record is arbitrary. Gaps between the contigs are represented as runs of N, but the exact sizes of the gaps are unknown. This record will be updated with the finished sequence as soon as it is available and the accession number will be preserved.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          120277 120376: gap of 100 bp 1120377 120376: gap of 100 bp 120377 13660: contig of 16284 bp in length 13661 13650: gap of 100 bp 153914 154013: gap of 100 bp 154013: gap of 100 bp 15860 158759: gap of 100 bp 15860 158759: gap of 100 bp 158760 164235: contig of 4646 bp in length 164236 164335: gap of 100 bp 164336 164335: gap of 100 bp 164336 164335: gap of 100 bp 185096: gap of 100 bp 186097 185096: gap of 100 bp 186097 185096: gap of 100 bp 186096: gap of 186096: gap of
                                                                                                                                                                                                                                                                                                                                                                                3351 14600: contig of 100 bp
14601 14700: gap of 100 bp
14701 32357: contig of 17657 bp in length
32458 34577: gap of 2429 bp in length
32458 34886: contig of 2429 bp in length
                                                                                                                                                                                                                                                                                                                                                    3251 3350: gap of 100 bp 1351 14600: contig of 11250 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  64072: gap of 100 bp 82711: contig of 18639 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      811: gap of 100 bp
111814: contig of 29003 bp in length
1914: gap of 100 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          111915 111914: gap of 100 bp
111915 120276: contig of 8362 bp in length
120277 120376: gap of 100 bp
120377 136660: contig of 16284 bp in length
                                                                                                                                                                                                                                                                                                                    3250: contig of 3250 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         86: gap of 100 bp 43490: contig of 8504 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 43590: gap of 100 bp 47437: contig of 3847 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             37: gap of 100 bp 57356: contig of 9819 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          56: gap of 100 bp 59845: contig of 2389 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              445: gap of 100 bp 63972: contig of 4027 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /4701. .32357
/note="assembly_fragment:00673
fragment_chain:1"
32458. .34886
.70te="assembly_fragment:00884
fragment_chain:1"
34987. .43490
/note="assembly_fragment:00652
fragment_chain:1"
43591. .47437
/note="assembly_fragment:00628
fragment_chain:1"
47538. .57356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="assembly_fragment:01752
fragment_chain:1"
3351, 14600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="assembly_fragment:00983
fragment_chain:2"
57457, .59845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /clone_lib="RPCI-11.2"
1. .3250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /clone="RP11-557F22"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /chromosome="6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      57456:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              59945:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         47537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 43491
43591
47438
47538
57357
57457
59846
63973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              82712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              64073
```

```
δ
                                                                                                                                                                                                                                                                                                                                                                                                                              1124
                                                                                                                                                                                                                                                                                                                                                                         1995. .2108
/number=5
3109. .>3149
/number=6
                                                                                                                                                                                                   /product="HFE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                29.5%;
75.9%;
                                                                                                                                                                                                                                                                                                                                             1588. .1863
/number=4
1995. .2108
                                                                                                                                                1. .264
/number=2
                                                                                                                                                                                                                                                                                                                       468. .743
/number=3
                                                                                                                                                                                                                                                                                                                                                                                                                               924 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches 123; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                              1142
                                                                                source
  AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  896
                                                                                                                                                                                                                                                                                                                                                                            exon
                                                                                                                                                                                                                                                                                                                                                 exon
                                                                                                                      mRNA
                                                                                                                                                 exon
                                                                                                                                                                                                                                                                                                                        exon
                                                                                                                                                                                                                                                                                                                                                                                                      exon
                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                            ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AF301592 4349 bp DNA linear MAM 13-DEC-2000 Diceros bicornis HPE gene, exons 2 through 6 and partial cds. AF301592
                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            black rhinoceros.

Diceros bicornis

Bukaryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

Bukaryota: Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

Mammalia: Eutheria; Perissodactyla; Rhinocerotidae; Diceros.

1 (bases 1 to 4349)

Rhinoceros HFE Polymorphisms

Unpublished

2 (bases 1 to 4349)
                                                                                                                                                                                                                                                                                                                                                                                                                                            TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121 CACAAGTCATGGGTTTAATTTCTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCCTTGCTTTTTATTTAACCAATAATCTTTTGTATATTTATACCTGTTAAAAATTCAGA 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              241 AATGTCAAGGCCGGGCCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG 300
                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                               Length 193752;
                                                                                                                                                                                                                                                                                                                                                                                                      ;
                                                                                                                                                                                                                                                                                                                       1732 others
                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                              /11915. .120276
/note="assembly_fragment:00783.0"
/2037; .13660
/note="assembly_fragment:01014"
/136761 .153913_fragment:01161"
/note="assembly_fragment:01129
fragment_chain:2"
5946. 53972
/note="assembly_fragment:01207
fragment_chain:3"
64073. 87711
fragment_chain:3"
82812. .111814
/note="assembly_fragment:00470"
                                                                                                                                                                                                                                                                                                                                                                          Score 299.4; DB 2;
Pred. No. 4.1e-76;
0; Mismatches 1;
                                                                                                                                                                                                                                                                  164336. .184996
/note="assembly_fragment:01884"
185097. .193752
/note="assembly_fragment:01893"
40409 c 39996 g 55686 t 17
                                                                                                                                                                                                               154014. .158659
/ hote="assembly_fragment:01329"
158760. .164235
/hote="assembly_fragment:01675"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AF301592.1 GI:11692702
                                                                                                                                                                                                                                                                                                                                                                            99.5%;
                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                          ď
                                                                                                                                                                                                                                                                                                                       55929
                                                                                                           misc_feature
                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11782 C 11782
                              misc_feature
                                                                    misc_feature
                                                                                                                                  misc_feature
                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                      300;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  301 C 301
                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local S:
Matches 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                       BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AF301592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
```

```
/organism="Diceros bicornis"
/db_xxef="Laxon:9805"
join(<1. .264,468. .743,1588. .1863,1995. .2108,3109. .>3149)
/product="HFE"
                                                                                                                                                                                                                                                                                                      .3149)
                                                                                                                                                                                                                                                                                                                                                                                                                              RAQWULGEAHSQULOLTQSIKGMDHMFINDSWILEDANSI VLEDEN YAHRENKAED
DNSTRGFWKYGYDGQDHLEFCPETLDMRAAESRALTTKLEWEVNKIRAKQNRAYLERD
CPEQLQWLLELGRGYLDQQVPPLVKYTHHVASAVTTLRCQALNFYPQNITMRWLKDRK
PVDVKDAESKDVLPSGDGTYQSWEALAVPPGEEQRYTCQVEHPGLDQPLTATWEPSLS
NTLYGVISGIAVCVIIFFIGILFRILRKRQASRGAMGDYVLAECE"
468. 743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1;
                                                                                                                                                                                                                                                                                                                                                                     /protein_id="AAG39940.1"
/db_xref="GI:11692703"
/translation="SHSLRYLFWGASERDHGLPLFEALGYVDDELFVAYNHESRRAES
West,C.J., Worley,M. and Beutler,E.
Direct Submission
Submitted (30-MG-2000) Molecular and Experimental Medicine, The
Scripps Research Institute, 10550 North Torrey Pines Road, La
Jolla, CA 92037, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .2108,3109.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   87 GTCTCTACCTTATAATTGAGATGTATGAGACAGCCACAAGTCATGGGTTTAATTTCTTTT 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 4349;
                                                                                                                                                                                                                                                                                               join(<1. .264,468. .743,1588. .1863,1995.
/codon_start=3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1026 CTCTGTGTCTACTTATACATTTCAGAAATTCAGAGGTGTCAA 1067
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      207 ICTTTTGTATATTTATACCTGTTAAAAATTCAGAAATGTCAA 248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 88.8; DB 4;
Pred. No. 2e-15;
0; Mismatches 37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Search completed: June 19, 2002, 10:58:56
Job time: 8334 sec
```

		•
		•

F25183 HSPD12013 H

OM nucleic

Run on:

```
Contact: Mahairas GG, Wallace JC, Hood L
High Throughput Sequencing Center
University of Washington
401 Queen Anne Avenue North, Seattle, WA 98109, USA
Tel: (206) 616-3618
Fax: (206) 616-3887
Email: jwallace@u.washington.edu
Clones are derived from the human BAC library RPCI-11. For BAC
library availability, please contact Pieter de Jong
(plieter@elejong.med.buffalo.edu). Clones may be purchased from
BACPAC Resources (http://bacpac.med.buffalo.edu/ordering_bac.htm)
or from Resear h Genetics (info@tresgen.com). BAC end Web Server:
http://www.htsc.washington.edu
Plate: 1019 row: N column: 17
Seg primer: T7
Class: BAC ends
                                                                                                                           AA573540 nf41b05.s
AI732239 nf41b05.x
AI732239 nf41b05.x
AG144127 Pan trog1
AG15691 Pan trog1
AG15692 Ren trog1
AG185523 RPCIII-13
AV713396 AV713396
AA720754 nv93911.r
AQ631584 RPCI-II-4
B1522662 603175686
B1522662 603175686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Homo sapiens
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 511)
Mahairas, G.G., Wallace, J.C., Smith, K., Swartzell, S., Holzman, T.,
Keller, A., Shaker, R., Furlong, J., Young, J., Zhao, S., Adams, M.D. and
                                                                                                                                                                                                                                                                                                   BG257716 602377406
BC00848 Homo sapi
BG05494 704312.x
AQ228137 HS_2014_8
BM423178 PLATE3_C0
AQ210277 HS_3249_B
AQ475579 CITBI E1-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AQ703007 531 bp DNA linear GSS 07-JUL-1999 HS_5443_B1_G09_T7A RPCI-11 Human Male BAC Library Homo sapiens genomic_clone Plate=1019 Col=17 Row=N, DNA sequence.
                            AG061477 Pan trog1
AF113008 Homo sapi
BE14774 RC1-HT022
AQ26902 RPCI11-74
AG090274 Pan trog1
AG095800 Pan trog1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence-tagged connectors: A sequence approach to mapping and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           scanning the human genome
Proc. Natl. Acad. Sci. U. S. A. 96 (17), 9739-9744 (1999)
99380589
                                                                                                                                                                                                                                                                                                                                                                                                                                      ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         High quality sequence stop: 531.
Location/Qualifiers
                              AG061477
AF113008
BE147774
AQ269092
AG090274
AG095800
                                                                                                                                                                     AG144127
AG115691
AG084336
AG0843396
AG720754
AG720754
BI522662
BI522662
BIS22662
BIS22662
BIS2662
BISSE8
B
                                                                                                                           AA573540
AI732329
AI732239
                                                                                                                                                                                                                                                                                                                                                                                          AQ475579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AQ703007
AQ703007.1 GI:5412433
                                                        77070707077
 482
748
11110
1378
495
415
415
Hood, L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               human.
source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
AQ703007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMMENT
 June 19, 2002, 08:24:43 ; Search time 1700.16 Seconds (without alignments) 2389.530 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AQ471524 CITBL-E1-
AZ756856 ew02e08.x
AA825901 od52h11.s
A1092525 ga38£07.x
AQ150673 HS_3203_A
AW1020486 df10e08.y
A1565873 tq49Q04.x
BF898122 RC1-MT016
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AQ703007 HS_5443_B
AG019823 Homo sapi
AG020621 Homo sapi
W44873 zc05d01.rl
BG388094 602413054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       R89296 yq02f11.s1
H71349 yu55h06.s1
N58729 yv74a10.s1
AQ489145 RPCI-11-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                 301
1 GGCACGGAATCCCTGGTTGG......GCACTTTGGGAGGCCGAGGC 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Description
                                                                                                                                                                                                                                                                                    27472414
          GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                    13736207 seqs, 6748477542 residues
                                                                                                                                                                                                                                                                                hits satisfying chosen parameters:
                                                                                                                                                 US-09-497-957-3_COPY_4570_4870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUMMARIES
                                                                                                                                                                                                                                                                                                                                                     Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                               - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AQ471624
AZ756856
AA825901
A1992525
AQ150673
AW020486
A1565873
BF898122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         W44873
BG388094
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N58729
AQ489145
                                                                                                                                                                                                          IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       R89296
H71349
                                                                                                                                                                                                                                                                                                           Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   em_gss_inv:*
em_gss_pln:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         em_gss_hum:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   em_gss_vrt:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         001100100
                                                                                                                                                                                                                                                                                                                                                                                                                           em_estba:*
em_esthum:*
em_estin:*
em_estin:*
em_estin:*
em_estin:*
em_estin:*
em_estin:*
gb_esti:*
gb_esti:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ap_gss:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5531
6630
6630
6630
3303
3303
3303
3303
400
400
6414
556
                                                                                                                                                                                                                                                                                                                                                                                                                 EST:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query
Match 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           886.4
2211.7
2211.1
2211.1
220.0
200.0
200.7
200.7
200.7
200.7
                                                                                                                                                                                                                                                                                                                                                                                                                                            Total number of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score
                                                                                                                                                                  score:
                                                                                                                                                                                                          Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           260.2
65.2
65.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  63.6
63.4
63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            22.22.28.88
62.22.28.88
62.22.28.88
62.22.28.88
```

Database :

0000

ပ

õ

Searched:

Sequence: Perfect

```
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Eutheria; Printes; Catarrhini; Hominidae; Homo.

I (bases 1 to 659)

S Hattori, M., Fujiyama, A., Ishii, K., Toyoda, A., Taylor, T., Park, H.-S., Yada, T., Watanabe, H. and Sakaki, Y.

Homo sapiens genomic DNA, chromosome 21q

I. Published Only in DataBase (1999) In press

2 (bases 1 to 659)

Hattori, M., Fujiyama, A., Ishii, K., Toyoda, A., Taylor, T.,

Park, H.-S., Yada, T., Watanabe, H. and Sakaki, Y.

Direct Submission

Submitted (19-OCT-1999) to the DDBJ/EMBL/GenBank databases.

Masahira Hattori, RIKEN Genomic Sciences Center(GSC) c/o Kitasato
University; 1-15-1 Kitasato, Sagamihara 228-8555, Japan

(E-mail:hattori@figc.ims.u-tokyo.ac.jp, Tel:042-778-9923,
Fax:042-778-9924)
                                                                                                                                                                                                                                                                                                                                               659 bp DNA linear GSS 19-OCT-1999
Homo sapiens genomic DNA, 21q region, clone: B266G18_SpN017_Rv,
AG020621
AG020621.1 GI:6063581
GSS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                236 TCAGAAATGTCAAGGCCGGGCACGGTGGCTCACCCTGTAATCCCAGCACTTTGGGAGGC 295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      176 CTATGGCCCTTGCTTTTATTTAACCAATAATCTTTTGTATATTTATACCTGTTAAAAAT 235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                81 CAAAGAGCTATATTACTATATGACCAGAAAAATTTAAAGTCATTGCAACCTTTAAAAAA 140
                                                                                                         176 CTATGGCCCTTGCTTTTATTTAACCAATAATCTTTTGTATTTTATACCTGTTAAAAT 235
                                                                                                                                                                               ;
                                    Length 630;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 65.2; DB 12;
Pred. No. 2.6e-06;
0; Mismatches 38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens DNA, clone: B266G18_SpN017_Rv.
                                  Score 65.2; DB 12;
Pred. No. 2.6e-06;
0; Mismatches 38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ų
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /clone_"B266G18_SpN017_Rv"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1. 659
/organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="21"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21.7%; 69.8%;
                                  21.7%;
ilarity 69.8%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            132 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
Matches 88; Conserv
                                                     Similarity
88; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             296 CGAGGC 301
                                                                                                                                                                                                                                                                                              201 TGAGGC 206
                                                                                                                                                                                                                                                            296 CGAGGC 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 201 TGAGGC
                                      Query Match
                                                     Best Local
Matches 8
                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                              VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                    RESULT
AG020621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Óγ
                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                         엄
                                                                                                                                                                                                                                                            δ
/db_xref="taxon:9606"
/clone="plate=1019 Col=17 Row=N"
/clone=lib="RPCI-11 Human Male BAC Library"
/sex="male"
/note="Vevctor: pBACC3.6; Site_1: ECORI; Site_2: ECORI;
Male blood DNA was isolated from one randomly chosen donor and partially digested with a combination of ECORI and ECORI Methylase. Size selected DNA was cloned into the BBACG3.6 vector: at ECORI sites " 5 others
a 114 c 146 g 137 t 5 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     האטנושטעל 630 bp DNA linear GSS 16-OCT-1999
Homo sapiens genomic DNA, 21g region, clone: B2289H10 SpN077(-21),
genomic survey sequence.
                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Submitted (16-0027-1999) to the DDBJ/EMBL/GenBank databases. Masahira Hattori, RIKEN Genomic Sciences Center(GSC) c/o Kitasato University: 1-15-1 Kitasato, Sagamihara 228-8555, Japan (E-mail:hattori@hgc.ims.u-tokyo.ac.jp, Tel:042-778-9923, Fax:042-778-9924)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalla; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                            443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       264 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGCCTCTCCAAATTC 323
                                                                                                                                                                                                                                                                                                                                                                                         61 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                121 CACAAGTCATGGGTTTAATTTCTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181 GCCCTTGCTTTTTTTTTAACCAATAATCTTTTGTATATTTTATACCTGTTAAAAATTCAGA 240
                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                    9
                                                                                                                                                                                                                                                                                                                  1 GGCACGGAATCCCTGGTTGGAGTTCAGAGGTGGCTGAGGCTGTGTGCTCTCCAAATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 (bases 1 to 630)
Hattori,M., Fujiyama,A., Ishii,K., Toyoda,A., Taylor,T., Park,H.-S., Yada,T., Watanabe,H. and Sakaki,Y.
Homo sapiens genomic DNA, chromosome 21q
Published Only in DataBase (1999) in press
2 (bases 1 to 630)
Hattori,M., Fujiyama,A., Ishii,K., Toyoda,A., Taylor,T., Park,H.-S., Yada,T., Watanabe,H. and Sakaki,Y.
                                                                                                                                                                                                                                       Score 260.2; DB 12; Length 531;
Pred. No. 2.7e-55;
0; Mismatches 5; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens DNA, clone: B2289H10 SpN077(-21).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /clone-"B2289H10 SpN077(-21)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      174

    630
    /organism="Homo sapiens"
/db_xref="taxon:9606"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Б
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AG019823.1 GI:6045767
                                                                                                                                                                                                                                         Query Match 86.4%;
Best Local Similarity 98.1%;
Matches 262; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /map="21g"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     126 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AG019823
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ношо
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GSS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                     BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
AG019823
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                         ò
```

ö

Gaps

```
BG388094.1 GI:13281540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AQ471624.1 GI:4655278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21.3%;
70.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 21.3
Best Local Similarity 70.8
Matches 85; Conservative
                                                                                             mRNA sequence.
BG388094
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DNA sequence.
AQ471624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         human.
                                                                                                                                                                                                                   human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                        LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
ORIGIN
         BG388094/c
                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                           TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
AQ471624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                      ACCESSION
                                                                                                                                                     VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                      Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi,
Bukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi,
Mammalia, Eutheria, Primates, Catarrhini, Hominidae, Homo.
E. I. (bases 1 to 422)
E. Hillier, L., Clark, W., Dubuque, T., Elliston, K., Hawkins, M., Holman, M., Kucaba, T., Le, M., Lennon, G., Marra, M., Parsons, J.,
M., Hultman, M., Kucaba, T., Le, M., Tan, F., Trevaskis, E., Waterston, R., Williamson, A., Wohldman, P. and Wilson, R.
The Washi-Merck EST Project
L. Unpublished (1995)
Contact: Wilson RK
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1. .422
/organism="Homo sapiens"
/db_xref="GDB:1259606"
/db_xref="taxon:9606"
/db_xref="taxon:9606"
/clone="IMAGE:321409"
/clone="Lib="soares_parathyroid_tumor_NbHPA"
/tissue_type="parathyroid tumor"
/dev_stage="adult"
/lab_host="bH10B (ampicillin resistant)"
/loce="organ: parathyroid gland, Vector: pT7T3D (Pharmacia /note="organ: parathyroid")
// is a figuration of the figuration of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                 EST 10-0CT-1996
                                                                                          zc05d01.rl Soares_parathyroid_tumor_NbHPA Homo sapiens cDNA clone
IMAGE:321409 5' similar to contains Alu repetitive element; , mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Email: est@watson.wustl.edu
This clone is available royalty-free through LLNL; contact the
This clone is available royalty-free through LLNL; contact the
TMAGE Consortium (info@image.llnl.gov) for further information.
Insert Length: 597 Std Error: 0.00
Seq primer: mob.REGA+ET
High quality sequence stop: 350.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       205 AAICITITGIATATITATACCIGITAAAATITCAGAAAIGICAAGGCCGGGCACGGIGGC 264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 10; Length 422;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 65; DB 10; Length 42:
Pred. No. 2.9e-06;
0; Mismatches 20; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10 others
                                                                 linear
                                                                    mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          265 TCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGGC 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCACGCCTGTAATCCCAGCACTTTGGGAGGCCGAGGC 327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 106 t
                                                                 422 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              93 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 21.6%;
Best Local Similarity 79.4%;
Matches 77; Conservative
                                                                                                                                                                                                             W44873.1 GI:1328963
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 96
C
                                                                                                                                                                                                                                                                                                       Homo sapiens
                                                                                                                                                           sedneuce.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 117
                                                                                                                                                                                                                                                                           human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                     SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
ORIGIN
                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         291
                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                             VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
RESULT W44873
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMMENT
```

δ g ŏ

```
/db_xref="taxon:0566"
/clone="InAGE:4521732"
/clone="InAGE:4521732"
/clone="InAGE:4521732"
/clone="type="tembryonal carcinoma, cell line"
/lab_host="DH10B (phage-resistant)"
/note="Organ: testis; Vector: pcMV-SPORT6; Site_1: Not1;
/note="organ: testis; Vector: pcMV-SPORT6; Site_1: Not1;
Site_2: Sall; Cloned unidirectionally; oligo-dT primed.
Average insert size 2.5 kb. Library enriched for full-length clones and constructed by Life Technologies.
Note: this is a NIH_MGC Library."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens
Eukaryota, Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1 (Dases 1 to 533)
Zhao,S., Adams,M.D., Nierman,W., Malek,J., Shizuya,H., Simon,M. and Venter,J.C.
Use of BAC End Sequences from CalTech Libraries for Sequence-Ready Map Building
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AQ471624 SS 23-APR-1999
CITBI-E1-2590G21.TR CITBI-E1 Homo sapiens genomic clone 2590G21,
EST 12-MAR-2001
                                                                                                                                                                                                                              Homosapiens
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 651)
NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC)
Contact: Robert Strausberg, Ph.D.
Email: cgapbs-r@mail.nih.gov
Tissue Procurement: ATCC
BG388094 651 bp mRNA linear EST 12-MAR-:
602413054F1 NIH_MGC_92 Homo sapiens cDNA clone IMAGE:4521732 5'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            con Library Preparation: Life Technologies, Inc.
con Library Preparation: Life Technologies, Inc.
con Library Preparation: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at:
http://image.llnl.gov k column: 13
plate: LLAM/0421 row: k column: 13
High quality sequence stop: 633.
I.coation/Qualifiers
1.651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181 GCCCTTGCTTTTTATTTAACCAATAATCTTTTGTATATTTTATACCTGTTAAAAATTCAGA 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           241 AATGTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        306 TACATATAGGCTGGACGCAGTGGCTCACACCTGTAATCCCAGCACTTTGGGAGGCCAAGG 247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 651;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 64; DB 10; Length 65:
Pred. No. 5.2e-06;
0; Mismatches 35; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
```

```
/clone="ew02e08"
/clone_lib="PAX3/FKHR CASTing Library 'ew'"
                                                                                         /lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AA825901.1 GI:2899213
                                                                                                                                                                                                                                                                                                                                                        21.1%;
72.6%;
                                                                                                                                                                                                                                                                                                                                                                                              82; Conservative
                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens
                                                                                                                                                                                                                                                                           97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         human.
                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                       BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AA825901/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                      ά
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          q
Other_GSSs: CTTBI-EI-259G21.TF
Contact: Shaying Zhao, William Nierman, Mark Adams
Department of Eukaryotic Genomics
The Institute for Genomic Research
9712 Medical Center Dr., Rockville, MD 20850
Fax: 301 838 0208
Fax: 301 838 0208
Email: bbe@tigr.org
Clones are available from Research Genetics (info@resgen.com). BAC end search page:
http://www.tigr.org/tdb/humgen/bac_end_search/bac_end_search.html.
Seg primer: M13 Reverse
Class: BAC ends.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GSS 01-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalla; Eutherla; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 303)
                                                                                                                                                                                                                                                                                                                                                                                                                                /cell_type="sperm"
/note="Vector: pBeloBACI1; Site_1: EcoRI; Site_2: EcoRI;
Calrech Human BAC Library D"
109 c 113 g 145 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Cyclic amplification and selection of target genes regulated by Pax3 and PXX3/FKHR in embryogenesis and alveolar rhabdomyosarcoma Unpublished (2000)
Contact: Friedman TB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Laboratory of Molecular Genetics
National Institute on Deafness and Other Communication Disorders,
National Institutes of Health
5 Research Court, Room 2A-15, Rockville, MD 20850, USA
Tel: 301 402 7580
Email: filedmanidacionih.gov
Plate: 02 row: e column: 08
Seg primer: -21M13 forward primer (ABI)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          303 bp DNA linear GSS 01-MAR-ew02e08.x1 PAX3/FKHR CASTing Library 'ew' Homo sapiens genomic clone ew02e08 random, DNA sequence.
AZ756856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       184 CTTGCTTTTTATTTAACCAATAATCTTTTGTATTTTATACCTGTTAAAAATTCAGAAAT 243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       244 GTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGGC 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           140 AATTAGGCCGGCACAGTGCCTCATAGCCTGAATCCCAACACTTAGGAGGCCGAGGC 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Barber,T.D., Barber,M.C., Tomescu,O., Barr,F., Ruben,S. and
Friedman,T.B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 533;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     34; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 63.6; DB 12;
Pred. No. 6.6e-06;
0; Mismatches 34;
                                                                                                                                                                                                                                                                                                           1. .533
/organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Class: random plasmid subclone.
                                                                                                                                                                                                                                                                                                                                                                     /clone="2590G21"
/clone_lib="CITBI-E1"
                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AZ756856.1 GI:13176313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 21.1%;
Best Local Similarity 71.2%;
Matches 84; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                               /sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        human.
                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 7
AZ756856/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DEFINITION
    JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       õ
```

```
Tissue Procurement: Louis M. Staudt, M.D., Ph.D., David Allman, Ph.D., Gerald Marti, M.D.

CDNA Library Preparation: M. Bento Soares, Ph.D., M. Fatima Bonaldo, Ph.D.

CDNA Library Preparation: M. Bento Soares, Ph.D., M. Fatima Bonaldo, Ph.D.

CDNA Library Arrayed by: Greg Lennon, Ph.D.

DNA Sequencing by: Washington University Genome Sequencing Center Clone distribution information can be found through the I.M.A.G.E. Consortium/LLML at:

www-bio.llnl.gov/bbrp/image/image.html
Insert Length: 726 Std Error: 0.00
Seq primar: -40m13 fwd. ET from Amersham
High quality sequence stop: 388.

Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AA825901 389 bp mRNA linear EST 09-JUN-1998 od52hll.sl NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:1371621 3' similar to contains Alu repetitive element; contains element MER9 respetitive element; , mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDNA Library Arrayed by: Greg Lennon, Ph.D.
DNA Sequencing by: Washington University Genome Sequencing Center
Clone distribution: NCI-CGAP clone distribution information can be
found through the I.M.A.G.E. Consortium/LLNL at:
/note="Vector: pGEM-T Easy; Human genomic DNA was partially digested with Sau3AI, ligated to ds linkers, and enriched for binding to human PAX3/FKHR protein using a Whole Genome PCR-based strategy. DNA fragments containing putative PAX3/FKHR binding sites were amplified by PCR and cloned into pGEM-T Easy (Promega). The ligation products were transformed into DH10B electrocompetent cells (Life Technologies)."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1 (Dases 1 to 389)
NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap.
NATional Cancer Institute, Cancer Genome Anatomy Project (CGAP), Unpublished (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Contact: Robert Strausberg, Ph.D.
Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Louis M. Staudt, M.D., Ph.D., David Allman,
Ph.D., Gerald Marti, M.D.
cDNA Library Preparation: M. Bento Soares, Ph.D., M. Fatima
Bonaldo, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              189 ITTITATITAACCAATAATCITITGIATATTTATACCIGITAAAAATTCAGAAATGICAA 248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          126 TITCCCATITICCAAGCAAACTITACATICTTAAACCATTITAATTAGCGTAAAAGTATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 303;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              31; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                Score 63.4; DB 12;
Pred. No. 7.3e-06;
0; Mismatches 31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ww-bio.llnl.gov/bbrp/image/image.html
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
```

S

ö

Gaps

ö

```
(Pharmacia) with a modified polylinker; Site_1: Not I; Site_2: Eco RI; Equal amounts of plasmid DNA from three normalized libraries (melanocyte 2NbHW, pregnant uterus NbHPU, and fetal heart NbHH19W) were mixed, and ss circles were made in vitro. Following HAP purification, this DNA was used as tracer in a subtractive hybridization fraction. The driver was PCR-amplified cDNAs from pools 5,000 clones made from the same 3 libraries. The pools consisted of I.M.A.G.E. clones 260232-265223, 70 75 9 86 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AQ150673

AQ150673

AQ150673

AQ150673.

AQ1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
I (bases 1 to 43)
Mahairas, G.G., Wallace, J.C., Smith, K., Swartzell, S., Holzman, T.,
Keller, A., Shaker, R., Furlong, J., Young, J., Zhao, S., Adams, M.D. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /clone_lib="CIT Approved Human Genomic Sperm Library D"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTTTTTATTTAACCAATAATCTTTGTATATTTATACCTGTTAAAAATTCAGAAATGTCA 247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence-tagged connectors: A sequence approach to mapping
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Proc. Natl. Acad. Sci. U. S. A. 96 (17), 9739-9744 (1999) 99380589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          248 AGCCCGGCCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGGC 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 62.8; DB 12; Length 439;
Pred. No. 1e-05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    20.9%; Score 62.8; DB 9; Length 342; llarity 71.9%; Pred. No. 1e-05; Conservative 0; Mismatches 32; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          High Throughput Sequencing Center
University of Washington
401 Queen Anne Avenue North, Seattle, WA 98109, USA
TEL: (206) 616-3818
Fax: (206) 616-3887
Email: jwallace@u.washington.edu
Plate: 3203 row: A column: 10
Class: BAC ends
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Homo sapiens"
/db_xref="taxon:9606"
/clone="Plate=3203 Col=10 Row=A"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Contact: Mahairas GG, Wallace JC, Hood L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              High quality sequence stop: 439.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        95 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20.9%;
59.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                              109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hood, L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Sim
Matches 82;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 10
AQ150673/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                              BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMMENT
                                                                                                                                                                                                                                                                                                                                                                  ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                  AI092525 342 bp mRNA linear EST 18-AUG-1998 qa38£07.x1 Soares_NhHMPu_S1 Homo sapiens CDNA clone IMAGE:1689061 3' similar to contains Alu repetitive element;, mRNA sequence. AI092525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 34).

NCI-GAP http://www.ncbl.nlm.nih.gov/ncicgap.
National Cancer Institute, Cancer Genome Anatomy Project (CGAP),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /clone="IMAGE:1689061"
/clone_lib="Soares_NhHMPu_S1"
/tissue_type="Pooled human melanocyte, fetal heart, and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Tumor Gene Index (Opp.) Contact: Robert Strausberg, Ph.D. Email: cgapbs-r@mail.nih.gov This clone is available royalty-free through LLNL; contact the IMAGE Consortium (info@image.llnl.gov) for further information. Seq primer: -40ml3 fwd. ET from Amersham.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            214 TICAAATGACTACCCAAATGAGTITIATAAAACTGATCAAAAAATTTAAAAATTCCAAGCCGG 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           135 TIAATITCTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATGGCCCTTGCTTTTA 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   274 TTAGTGAGTTTTATTCAGACCAAGTGGTGAAATCTGAAAATTGAGATTTCACATGTATGA 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 195 TITAACCAATAATCITITGTATATTTATACCTGTTAAAATTCAGAAATGTCAAGGCCGG 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="Organ: mixed (see below); Vector: pT7T3D-Pac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 63; DB 9; Length 389
Pred. No. 9.3e-06;
0; Mismatches 65; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           154 GCATGGTGGCTCACACCTGTAATCCCAACACTTTGGGAGGCCGAGGC 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           255 GCACGGIGGCICACCCCIGIAAICCCAGCACTITGGGAGGCCGAGGC 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                 /db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           pregnant uterus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AI092525.1 GI:3431501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 20.9%;
Best Local Similarity 61.1%;
Matches 102; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       human.
source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AI092525/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
```

g

δ

g δ

```
Contact: Robert Strausberg, Ph.D.
Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Christopher Moskaluk, M.D., Ph.D., Michael R.
Emmert-Buck, M.D., Ph.D.
CDNA Library Preparation: Life Technologies, Inc.
CDNA Library Preparation: Life Technologies, Inc.
CDNA Library Preparation: Life Technologies, Inc.
CDNA Library Arrayed by: Greg Lennon, Ph.D.
DNA Sequencing by: Washington University Genome Sequencing Center
Clone distribution: NCI-CGAP clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at:
www-bio.llnl.gov/Dbrp/image/image.html
Insert Length: 966 Std Error: 0.00
Seq primer: -40UP from Gibco
High quality sequence stop: 280
                                                                                                                                                                                                                                                                                                             AI565873 281 bp mRNA linear EST 13-MAY-1999 tq49904.X1 NCI_CGAP_Utl Homo sapiens CDNA clone IMAGE:2212182 3/ similar to contains Alu repetitive element; contains L1.tl L1 repetitive element; , mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="Organ: uterus; Vector: pCMV-SPORT6; Site_1: Sall; Site_2: NotI; Cloned unidirectionally. Primer: Oligo dT. Average insert size 1.75 kb. Life Technologies catalog #:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Homo sapiens
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Butheria; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 281)
NCI-CAAP http://www.ncbi.nlm.nih.gov/ncicgap.
National Cancer Institute, Cancer Genome Anatomy Project (CGAP),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      203 ATAATCTTTTGTATATTATACCTGTTAAAATTCAGAAATGTCAAGGCCGGGCACGGTG 262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           303 AGAGCIGAGGAICTAAAGAITITIACIIIGAITIAICCCAITAICAICIGCAGGGAAACA 362
                                                                                                  224 CCTGTTAAAAATTCAGAAATGTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGC 283
                                                                                                                          AAAGGGAAGTGTCTATGCCCTTTGTTTTAACCAATAATCTTTTGTATATAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism="Homo sapiens"
/db_xref="taxon:9606"
/clone="IMAGE:2212182"
/clone=lib="NOI_CGAP_Ut"
/tissue_type="well-differentiated endometrial
adenocarcinoma, 7 pooled tumors"
/lab_host="DH108"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 281;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 62.2; DB 9; Length 2
Pred. No. 1.5e-05;
0; Mismatches 23; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         263 GCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGGC 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         69 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            p
                                                                                                                                                                                                                                                                                                                                                                                                            AI565873
AI565873.1 GI:4524325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20.7%;
76.8%;
                                                                                                                                                                                                           ACTITGGGAGGCCGAGGC 440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11538-014"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         53 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Tumor Gene Index
Unpublished (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                   284 ACTTTGGGAGGCCGAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   POLYA-No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Si
Matches 76;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
                                                                                                                                                                                                                          423
                     164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                       AI565873
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QQ
                                                         g
                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                      ò
                                                                                                                                                                                   à
                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    and Morton,C.C.
Isolation of novel and known genes from a human fetal cochlear cDNA
Library using subtractive hybridization and differential screening
Genomics 23, 42-50 (1994)
95130111
                                                                                                                                                                                                                                                                                                                                                AW020486 553 bp mRNA linear EST 28-AUG-2001 df10e08.yl Morton Fetal Cochlea Homo sapiens cDNA clone IMAGE:2483031 5', mRNA sequence.
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 (bases 1 to 553)
Robertson, N.G., Khetarpal, U., Gutierrez-Espeleta, G.A., Bieber, F.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Email: comortoodics.bwh.harvard.edu

DNA sequencing and analyses were performed by National Institutes

DNA sequencing and analyses were performed by National Institutes

The Health Intramural Sequencing Center (NISC; see

http://www.nisc.nih.gov).

This clone is available royalty-free through LLNL; contact the

IMAGE Consortium (info@image.llnl.gov) for further information.

Plate: LLAM6178 row: I column: 16

Seq primer: M13RPI reverse primer (ABI).

Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         USA
                                                                  182 CCCTTGCTTTTTTTTTAACCAATAATCTTTTGTATATTTTATACCTGTTAAAAATTCAGAA 241
                                        ACAAGTCATGGGTTTAATTTCTTTTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATGG 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                       242 ATGTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG 300
                                                                                                                                                                                                                          313 TTACCTGGCCTGGGCATGGTGGCTCATGCCTGTAATCCCAGCACTTTGGGAGGCTGAGG 255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Reproductive Biology
Brigham and Women's Hospital
75 Francis Street, Harvard Medical School, Boston, MA 02115,
Tel: 617 732 7980
Fax: 617 738 6996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota, Metazoa; Chordata; Craniata; Vertebrata; Eutele
Mammalla; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    On Sep 13, 1999 this sequence version replaced gi:5874016.
  .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Contact: Morton, C. C. Departments of Pathology and Obstetrics, Gynecology and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 62.8; DB 9; Length 553;
Pred. No. 1e-05;
0; Mismatches 47; Indels
73; Indels
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                              AW020486
AW020486.2 GI:15330169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tch 20.9%; al Similarity 65.9%; J1; Conservative
  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     . 553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            human.
106;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Si
Matches ,91)
                                                                                                                                                                                                                                                                                                                                                LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                         RESULT 11
AW020486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
MEDLINE
COMMENT
  Matches
                                        122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                  KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOURCE
                                        ò
                                                                               g
                                                                                                                          ô
                                                                                                                                                              g
                                                                                                                                                                                                       õ
                                                                                                                                                                                                                                           g
```

ö

Gaps

```
/de_stage="20 week-post conception fetus"
/de_stage="20 week-post conception fetus"
/lab_host="DH10B (ampicillin resistant)"
/note="Organ: Liver and Spleen; Vector: pT7T3D (Pharmacia)
with a modified polylinker; Site_1: Pac I; Site_2: Eco RI;
lst strand cDNA was primed with a Pac I - oligo(dT) primer
[5' AACTGGAAGARTTAAATATATATTTTTTTTTTTTTTTT];
double-stranded cDNA was ligated to Eco RI adaptors
(Pharmacia), digested with Pac I and cloned into the Pac I
and Eco RI sites of the modified pT7T3 vector. Library
went through one round of normalization. Library
constructed by Bento Soares and M.Fatina Bonaldo."

19 a 83 c 112 g 81 t
                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryofa, Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Manmalia: Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 400)

1 (bases 1 to 400)

1 (lark,N., Dubuque,T., Elliston,K., Hawkins,M., Holman,M., Hultman,M., Kucaba,T., Lennon,G., Marra,M., Parsons,J., Rifkin,L., Rohlfing,T., Soares,M., Tan,F., Trevaskis,E., Waterston,R., Williamson,A., Wohldmann,P. and Wilson,R.

7 (Inpublished (1995)

Contact: Wilson RK
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108

Tel: 314 286 1800

Fax: 314 286 1810
                                                              yq02f1.s1 Soares fetal liver spleen lNFLS Homo sapiens cDNA clone IMAGE:195789 3' similar to contains Alu repetitive element; contains R89296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Email: est@watson.wustl.edu
Insert Size: 1115
High quality sequence stops: 268
Source: IMAGE Consortium, LLNL
This clone is available royalty free through LLNL; contact the
IMAGE Consortium (info@image.llnl.gov) for further information.
INSERT Length: 1115 Std Error: 0.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               203 ATAATCTTTTGTATATTATACCTGTTAAAAATTCAGAAATGTCAAGGCCGGGCACGGTG 262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 400;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1. .400
/organism="Homo sapiens"
/db_xref="GDB:3764839"
/db_xref="taxon:9606"
/clone="IMAGE:195789"
/clone_lib="Soares fetal liver spleen INFLS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    23; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20.7%; Score 62.2; DB 10;
76.8%; Pred. No. 1.5e-05;
tive 0; Mismatches 23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          142 GCTCACGCCTGTAATCCCAGCACTTTGGGAGGCCGAGAC 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                263 GCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGGC 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Insert Length: 1115 Std Error:
Seq primer: Promega -21m13
High quality sequence stop: 268.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /sex="male"
                                                                                                                                                                                                                                                                                                              R89296.1 GI:954123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ouery ...
Best Local Similar
                                                                                                                                                                                                                                                                                                                                                                                                     . nemine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BASE COUNT
                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
JOURNAL
                                         14
                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                       VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
H71349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                             SOURCE
                                                                                                                    LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /clone_lib="MTO150"
/dev_stage="Adult"
/dev_stage="
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Fax: "53-11" Z/0/001.
Email: asimpson/ludwig.org.br
This sequence was derived from the FAPESP/LICR Human Cancer Genome
Project. This entry can be seen in the following URL
(http://www.ludwig.org.br/scripts/gethtml2.pl?tl=RC1&t2=RC1-WT0160-
281100-021-g01&t3=2000-11-28&t4=1)
Seq primer: puc 18 forward
High quality sequence start: 13
High quality sequence stop: 310.
Location/Qualifiers
1 . 310
| 1. 310
| 1. 310
| 2. 310
| 2. 310
| 2. 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 310
| 31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ő
                                                                                                                                310 bp mRNA linear EST 18-JAN-2001
RC1-MT0160-281100-021-g01 MT0160 Homo sapiens cDNA, mRNA sequence.
BF8988122.1 GI:12289581
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens

Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Buteleostomi;

Mammalia; Butheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 310)

Dias Neto,E., Garcia Correa,R., Verjovski-Almeida,S., Briones,M.R.,

Madi,M.A., da Silva,W. Jr., Zago,M.A., Bordin,S., Costa,P.F.,

Goldman,G.H., Carvalho,A.F., Matsukuma,A., Bala,G.S., Simpson,D.H.,

Brunstein,A., Gollveira,P.S., Bucher,P., Jongeneel,C.V., O'Hare

M.J., Soares,F., Brentani,R.R., Reis,L.F., de Souza,S.J. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Contact: Simpson A.J.G.
Laboratory of Cancer Genetics
Ludwig Institute for Cancer Research
Rua Prof. Antonio Prudente 109, 4 andar, 01509-010, Sao Paulo-SP,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Simpson, A.J. Shotgun sequencing of the human transcriptome with ORF expressed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               170 AAGTGTCTATGGCCCTTGCTTTTTATTTAACCAATAATCTTTTGTATTTTATACCTGTT 229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 10; Length 310;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Proc. Natl. Acad. Sci. U.S.A. 97 (7), 3491-3496 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           43;
164 GCTCACGCCTGTAATCCCAGCACTTTGGGAGGCCGAGAC 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 62.2; DB 10
Pred. No. 1.5e-05;
0; Mismatches 43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   101 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ch 20.7%;
1 Similarity 67.2%;
88; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            rel: +55-11-2704922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Fax: +55-11-2707001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         290 GGAGGCCGAGG 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1111111111
293 GGAGGCCGAGG 303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sequence tags
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20202663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Brazil
                                                                                                                                                                                                                                                                                                                                                                                                              human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
MEDLINE
COMMENT
                                                                                                                                                                                                                                                                                     ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                RESULT 1:
BF898122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                     SOURCE
                                                                                                                                                                                                                   LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      õ
```

Job time: 7196 sec

```
Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 408)

1 (bases 1 to 408)

1 (bases 1 to 408)

Chissoe, S., Dietrich, N., Bubuque, T., Favello, A., Gish, W., Hawkins, M., Hultman, M., Kucaba, T., Le, M., Le, M., Le, M., Le, N., Mardis, E., Moore, B., Morris, M., Parsons, J., Prange, C., Rifkin, L., Rohlfing, T., Schellenberg, K., Soares, M. B., Tan, F., Thierry-Meg, J., Trevaskis, E., Underwood, K., Wohldmann, P., Waterston, R., Wilson, R. and Marra, M. Generation and analysis of 280,000 human expressed sequence tags
408 bp mRNA linear EST 26-OCT-1995 yu55h06.sl Soares fetal liver spleen INFLS Homo sapiens CDNA clone IMAGE:230075 3' similar to contains Alu repetitive element; contains H71349.1 GI:1043165
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
Email: est@watson.wustl.edu
Insert 51ze: 1145
High quality sequence stops: 213
Source: TRAGE Consortium, LLNL
This clone is available royalty-free through LLNL; contact the Insert Length: 1145 540 Error: 0.00
Seq primer: Promega -21m13
High quality sequence stop: 213.
Location/Qualifiers
rce
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              203 ATANTCTTTTGTATATTTATACCTGTTAAAAATTCAGAAATGTCAAGGCCGGGCACGGTG 262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20.7%; Score 62.2; DB 10; Length 408; 76.8%; Pred. No. 1.5e-05; Live 0; Mismatches 23; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /clone_lib="Soares fetal liver spleen lNFLS"
/sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181 GCTCACGCCTGTAATCCCAGCACTTTGGGAGGCCGAGAC 219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       263 GCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGGC 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Homo sapiens"
/db_xref="GDB:3781171"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /db_xref="taxon:9606"
/clone="IMAGE:230075"
                                                                                                                                                                                                                                                                                                                                                                                                                                            Contact: Wilson RK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity 76.8
Matches 76; Conservative
                                                                                                                                                                         Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                         97044478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
      LOCUS
                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                             TITLE
JOURNAL
MEDLINE
COMMENT
                                                                                                                                                                                                                                  REFERENCE
AUTHORS
                                                                                                         VERSION
KEYWORDS
SOURCE
                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
```

Search coinfleted: June 19, 2002, 10:24:39

secreted pro polynucleoti Human reproductive CDNA encoding nove Human immune/haema Human immune/haema Lmmune/haema immune/haema Human kidney amino reproductive immune/haema secreted pro secreted pro

polynucleoti

Human Human Human Human Human Human Нишап

reproductive

Human Human Human Human

.mmune/haema

Human immune/haema

Human cDNA sequenc Human immune/haema

immune/haema

Нишап

immune/haema .mmune/haema human diagno cervical can

Human

Arachidonic acid m nervous syst immune/haema

Human Human Human Human Human Нишап Human

polynucleoti

Human Novel Human

Minimum DB : Maximum DB :

Searched:

Sequence:

Run on:

..

Database

lmmune/haema .mmune/haema Pp11 chromos reproductive reproductive

Human Human

EST-derived

neuroblastom

Нишап

```
Hereditary haemochromatosis; metal toxicity; diagnosis; gene therapy; prenatal screening; human; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
361.7147
/*tag= a
/note= "contains introns"
/*tag= b
                                                                                                                                                                                                                                                                                                                                                                     ALIGNMENTS
                                                                                                                                                               AAK83412
AAX85051
AAH16662
                                                                                                                                                                                                                                AA193692
AAH70948
                                                                                                                                                                                                                                                                               AAK85946
AAK85946
AAC87588
AAH98518
AAL05850
AAL05849
                                                       AAL05331
AAS44934
                                                                                                     AAK85928
AAK70122
                                                                                                                                            AAK64901
AAC30053
                                                                                                                                                                                          AAK64964
AAK71664
AAK56284
AAS38872
                                                                                                                                                                                                                                                    AAC57483
ABA16008
                             AAL02766
                                     AAC27863
                                               AAI86495
                                                                           AAK56970
                                                                                   AAK81318
                                                                                              AAI93368
                                                                                                                          AAX23521
                                                                                                                                     AAL04682
                                                                                                                                                                                                                                                                        AAK84542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hereditary haemochromatosis gene.
                                                                                                                                                                                                                                                                                                                                                                                                                    BP.
                                                                                                                                                                                                                                                                                                                                                                                                                   AAT96690 standard; DNA; 10825
4511..5605
/*tag= d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /number= 3
5882..6039
/*tag= e
/number= 4
6154..7106
                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4026..4234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /*tag= c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /number=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'number=
                                                                                                                                                                                                                                                   986
1641
6004
14969
21837
57728
710
32184
32204
51474
                                     344
3242
5768
7619
655
42519
                                                                                             448
841
22655
16595
                                                                                                                                                      328
4156
1146
4512
17979
17979
338
484
                                                                                                                                             5270
                                                                                                                                    909
\omega \omega \omega
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                         14-APR-1998
 AAT96690;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         intron
                                                                                                                                                                                                                                                                                                                                                                                                          AAT96690
RESULT
                                                υυ
                                                                           υ
                                                                                             00
                                                                                                                                     υo
                                                                                                                                                                                                                                            υv
                                                                                                                                                                                                                                                                        υ
                                                                                                                                                                                                                                                                                                                        00
                                                                                                                                                                                                                                                                                                                                                                                                                            June 19, 2002, 08:54:02; Search time 213.18 Seconds (without alignments) 2424.201 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human hereditary h
Human hereditary h
Human hereditary h
Genomic DNA of a h
Human musculoskele
Hereditary haemoch
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hereditary haemoch
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                      12. (SIDSI) gogdata/geneseq/geneseqn-embl/NA1980.DAT:*
13. (SIDSI) gogdata/geneseq/geneseqn-embl/NA1981.DAT:*
14. (SIDSI) gogdata/geneseqy-embs/NA1981.DAT:*
15. (SIDSI) gogdata/geneseqy-embs/NA1981.DAT:*
15. (SIDSI) gogdata/geneseqy-embs/NA1981.DAT:*
15. (SIDSI) gogdata/geneseqy-embs/NA1981.DAT:*
15. (SIDSI) gogdata/geneseqy-embs/NA1981.DAT:*
16. (SIDSI) gogdata/geneseqy-embs/NA1981.DAT:*
17. (SIDSI) gogdata/geneseqy-embs/NA1981.DAT:*
18. (SIDSI) gogdata/geneseqy-embs/NA1981.DAT:*
19. (SIDSI) gogdata/geneseqy-embs/NA1981.DAT:*
11. (SIDSI) gogdata/geneseqy-embs/NA1981.DAT:*
12. (SIDSI) gogdata/geneseqy-embs/NA1981.DAT:*
13. (SIDSI) gogdata/geneseqy-embs/NA1981.DAT:*
14. (SIDSI) gogdata/geneseqy-embs/NA1981.DAT:*
15. (SIDSI) gogdata/geneseqy-embs/NA1991.DAT:*
16. (SIDSI) gogdata/geneseqy-embs/NA1991.DAT:*
17. (SIDSI) gogdata/geneseqy-embs/NA1991.DAT:*
18. (SIDSI) gogdata/geneseqy-embs/NA1991.DAT:*
18. (SIDSI) gogdata/geneseqy-embs/NA1999.DAT:*
19. (SIDSI) gogdata/geneseqy-embs/NA1999.DAT:*
19. (SIDSI) gogdata/geneseqy-embs/NA1999.DAT:*
19. (SIDSI) gogdata/geneseqy-embs/NA1999.DAT:*
19. (SIDSI) gogdata/geneseqy-embs/NA1999.DAT:*
21. (SIDSI) gogdata/geneseqy-embs/NA1999.DAT:*
22. (SIDSI) gogdata/geneseqy-embs/NA1999.DAT:*
23. (SIDSI) gogdata/geneseqy-embs/NA1999.DAT:*
24. (SIDSI) gogdata/geneseqy-embs/NA1999.DAT:*
25. (SIDSI) gogdata/geneseqy-embs/NA1999.DAT:*
26. (SIDSI) gogdata/geneseqy-embs/NA1999.DAT:*
27. (SIDSI) gogdata/geneseqy-embs/NA1999.DAT:*
28. (SIDSI) gogdata/geneseqy-embs/NA1999.DAT:*
29. (SIDSI) gogdata/geneseqy-embs/NA1999.DAT:*
                                                                                                                         301
                                                                                                                      GGCACGGAATCCCTGGTTGG.......GCACTTTGGGAGGCCGAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /SIDS1/gcgdata/geneseg/genesegn-emb1/NA2002.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Description
                                                                                                                                                                                           3472872
        GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd
                                                                                                                                                                                       Total number of hits satisfying chosen parameters:
                                                                                                                                                                       1736436 seqs, 858457221 residues
                                                                                            US-09-497-957-3_COPY_4570_4870
301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SUMMARIES
                                                                                                                                                                                                                                        Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                             OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAC68426
AAC68427
AAC68427
AAC68428
AAA36794
AAL36747
AAV57903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAT96690
                                                                                                                                           IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     П
                                                                                                                                                                                                                                                                                N_Geneseq_032802:*
                                                                                                                                                                                                              length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     10825
10825
10825
10825
10825
12146
5749
237326
429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0
100.0
100.0
100.0
100.0
99.5
97.9
                                                                                                                                                                                                                                                                                                                                                                                       sed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301
301
301
301
301
301
299.4
294.6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score
                                                                                                             Perfect score:
                                                                                                                                           Scoring table:
```

intron

Result ٠ 9

OO

```
This genomic DNA sequence corresponds to the human gene whose mutated form is associated with hereditary haemochromatosis (HH).

To identify this novel gene, allelic association patterns were determined between known markers and the HH locus in the HLA region of chromosome 6. A physical clone coverage was then generated certending from D6S265, which is a marker that is centromeric of HLA-A, in a telomeric direction through D6S276, a marker at which the allelic association was no longer observed. A single mutation of 3 seasociation was no longer observed. A single mutation of 3 seasociation was no longer observed. A single mutation of 3 seasociation was no longer observed. A single mutation of 3 seasociation was no longer observed. A single mutation of 3 seasociation was no longer observed. A single mutation of 3 seasociation was no longer observed. A single mutation of 3 seasociation was no longer observed. A single mutation of 3 seasociation of 3 substitution in the encoded protein (see AAW36499) at a critical disulphide bridge important for secondary structure. The following are claimed: the HH genomic DNA (1), a structure. The following or expression vector; host cells; a clouding or expression vector; host cells; a peptide product chosen from the HH gene product, its variants (24d1, 24d2 and 24d7), or a peptide of at least 56 amino acid to determine the presence or absence of the common HH gene mutation; an animal model for the HH disease; metal chelation of injury due to oxidative process in vivo or mitigation of into overload; a method for screening potential animal and a method for screening potential animal and a method of a method for screening potential animal and a method of a method for screening potential animal and a method of a method for screening potential animal and a method of a method for screening potential and a method of a 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hereditary haemochromatosis gene and variants – useful for diagnosis and treatment of hereditary haemochromatosis disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               product of a nucleotide directed against a transcriptional product of a nucleotide directed against a transcriptional product of a nucleotides covering a range of nucleotides from (I), (Ia) or their variants, useful for detecting a polymorphism in the HH gene. The invention also relates to methods for screening for HH homosygotes, to HH diagnosis, prenatal screening and diagnosis, and therapies of HH disease, including gene therapy, protein- and antibody-based therapeutics, and small molecule
                                                                                                                                                                                                                                                   i
G to A substitution (24d1 mutation
associated with HH), results in Cys to
Tyr substitution"
                                                                 g "C to G substitution (24d2 mutation) results in His to Asp substitution"
                                                                                                                                                                               "A to T substitution (24d7 variant) results in Ser to Cys substitution'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Drayna DT, Feder JN, Gnirke A, Ruddy D, Thomas WJ;
Fsuchihashi Z, Wolff RK;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Disclosure; Fig 3; 115pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (MERC-) MERCATOR GENETICS INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    96US-0630912.
96US-0632673.
                                                                                                                                                                                                                                                                                                                                                                                                                                                  97WO-US06254.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               96US-0652265.
/*tag= f
/number= 5
3872
                                                                   /*tag=
/note=
                                                                                                                                                                                                                                                /*tag=
/note=
                                                                                                                                                                                 /note=
                                                                                                                                                            /*tag=
                                                                                                                                  3878
                                                                                                                                                                                                                           5834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 1997-512743/47
P-PSDB; AAW36499.
                                                                                                                                                                                                                                                                                                                                                            WO9738137-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                04-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             23-MAY-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    04-APR-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         16-APR-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 therapeutics
                                                                                                                                                                                                                                                                                                                                                                                                      16-0CT-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Drayna DT,
                                                                                                                                     variation
                                            mutation
                                                                                                                                                                                                                           mutation
```

```
ö
                                                                                                                                                                                4630 tgggaagggactttctcaatcctagagtctctaccttataattgagatgtatgagacagc 4689
                                                                                                                                                                                                                                                                                                                              Wolff RK;
                                                                                                                                                                                                           121 CACAAGTCATGGGTTTAATTTCTTTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATG 180
                                                                                                                                                                                                                                                                                                                  241 AATGTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG 300
                                                                                                                                                         TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 120
                                                                             Gaps
                                                                                                     1 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGCCTCTCCAAATTC 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  New hereditary hemochromatosis gene products or polypeptides, useful for treating hereditary hemochromatosis in a patient, and as a metal
                                                                                                                                                                                                                                                               181 GCCCTTGCTTTTTATTTAACCAATAATCTTTTGTATATTTATACCTGTTAAAAATTCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The present invention relates to hereditary hemochromatosis gene
                                                100.0%; Score 301; DB 18; Length 10825; 100.0%; Pred. No. 1e-79; 1. Mismatches 0; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gnirke A, Ruddy D, Tsuchihashi Z,
           Sequence 10825 BP; 2996 A; 2254 C; 2648 G; 2927 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HH; hereditary hemochromatosis; chelation agent; T-cell differentiation factor; iron overload; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             chelation agent alleviating iron overload
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Human hereditary hemochromatosis DNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Disclosure; Fig 3; 108pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAC68425 standard; DNA; 10825 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            97US-0834497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      96US-0630912.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  96US-0632673.
96US-0652265.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                              Best Local Similarity 100.
Matches 301; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (BIRA ) BIO-RAD LAB INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Thomas WJ, Drayna DT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI; 2001-006341/01.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        P-PSDB; AAB36869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            04-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    16-APR-1996;
23-MAY-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US6140305-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 31-OCT-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      04-APR-1996;
                                                                                                                                                                                                                                                                                                                                                                                               4870 c 4870
                                                                                                                                                                                                                                                                                                                                                                     301 C 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAC68425;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Feder JN;
                                                   Query Match
                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAC68425
                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
XX
S
                                                                                                      ò
                                                                                                                               셤
                                                                                                                                                         ò
                                                                                                                                                                                g
                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                      Dp
                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                           q
                                                                                                                                                                                                                                                                                                                                                                     δλ
                                                                                                                                                                                                                                                                                                                                                                                              Ω
```

```
chelation agent alleviating iron overload
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   04-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        04-APR-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 16-APR-1996;
23-MAY-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US6140305-A.
                                                                                                                                                                                                                                                                                                                                                                                               4870 c 4870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 31-0CT-2000
                                                                                                                                                                                                                                                                                                                                                                               301 C 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Thomas WJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAC68427;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Feder JN;
                                                                                                                                                                                                                                                                                                                                                                                                                               4
                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                       AAC68427
        g
                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                             Ω
                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                               ;
0
products. These proteins may be used to treat a patient diagnosed as having human hemochromatosis disease. It is also useful as a metal chelation agent or as a T-cell differentiation factor, and for alleviating iron overload. They may also be used in protein replacement therapy for individuals having a defective human hemochromatosis gene.
                                                                                                                                                                                                                                                                    4809
                                                                                                                                      4570 ggcacggaatccctggttggagtttcagaggtggctgaggctgtgcctctccaaattc 4629
                                                                                                                                                                            4810 aatgtcaaggccgggcacggtggctcacccctgtaatcccagcactttgggaggccgagg 4869
                                                                                                                                                                 61 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 120
                                                                                                                                                                                                                                                  240
                                                                                                                                                                                                       CACAAGTCATGGGTTTAATTTCTTTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATG 180
                                                                                                                                                                                                                                                                                        300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RK;
                                                                                                               Gaps
                                                                                                                             GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGTCCTCTCCAAATTC 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    New hereditary hemochromatosis gene products or polypeptides, useful for treating hereditary hemochromatosis in a patient, and as a metal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Wolff
                                                                                                                                                                                                                                             GCCCTTGCTTTTTATTTAACCAATAATCTTTTGTATATTTTATACCTGTTAAAAATTCAGA
                                                                                                                                                                                                                                                         4750 gcccttgcttttatttaaccaataatctttgtatatttatacctgttaaaattcaga
                                                                                                                                                                                                                                                                                    AATGTCAAGGCCGGGCACGGTGGCTCACCCTGTAATCCCAGCACTTTGGGAGGCCGAGG
                                                                                            Length 10825;
                                                                                                             ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Tsuchihashi Z,
                                                          Sequence 10825 BP; 2998 A; 2253 C; 2648 G; 2926 T; 0 other;
                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Human hereditary hemochromatosis 24d1 mutation DNA.
                                                                                      100.0%; Score 301; DB 22; 100.0%; Pred. No. 1e-79;
                                                                                                            .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HH; hereditary hemochromatosis; chelation agent; T-cell differentiation factor; iron overload; ds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ď
                                                                                                            0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ruddy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gnirke A,
                                                                                                                                                                                                                                                                                                                                                                                            AAC68426 standard; DNA; 10825 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 96US-0630912.
96US-0632673.
96US-0652265.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                97US-0834497
                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                          301; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (BIRA ) BIO-RAD LAB INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Drayna DT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2001-006341/01.
                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  P-PSDB; AAB36870.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              04-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                  21-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  04-APR-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     23-MAY-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US6140305-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6-APR-1996;
                                                                                                                                                                                                                                                                                                                                             4870 c 4870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           31-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MΩ,
                                                                                                                                                                                                                                                                                                                          301 C 301
                                                                                                                                                                                                                                                                                                                                                                                                               AAC68426;
                                                                                       Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Feder JN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Thomas
                                                                                                                                                                                                                           4690
                                                                                                         Matches
                                                                                                                                                                                                        121
                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                     241
                                                                                                                                                                                                                                                                                                                                                                                  AAC68426
  888888888
                                                                                                                                             g
                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                  à
                                                                                                                                                                                                       Ω
                                                                                                                                                                                                                       q
                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                   qq
                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                           g
```

```
The present invention relates to hereditary hemochromatosis gene products. These proteins may be used to treat a patient diagnosed as having human hemochromatosis disease. It is also useful as a metal chelation agent or as a T-cal differentiation factor, and for alleviating iron overload. They may also be used in protein replacement therapy for individuals having a defective human hemochromatosis gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4749
                                                                                                                                                                                                                                                                                                                                                                             4630 tgggaagggactttctcaatcctagagtctctaccttataattgagatgtatgagacagc 4689
                                                                                                                                                                                                                                                                                                                                                                                                                                              120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RK;
                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Wolff
                                                                                                                                                                                                                                                                                                                                                 1 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGCCTCTCCAAATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181 GCCCTTGCTTTTTATTTAACCAATAATCTTTTGTATATTTATACCTGTTAAAATTCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CACAAGTCATGGGTTTAATTTCTTTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     241 AATGICAAGGCCGGGCACGGTGGCTCACCCTGTAATCCCAGCACTTTGGGAGGCCGAGG
                                                                                                                                                                                                                                                                                                                 ;
0
                                                                                                                                                                                                                                                                    Length 10825;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Tsuchihashi Z,
                                                                                                                                                                                            Sequence 10825 BP; 2999 A; 2253 C; 2647 G; 2926 T; 0 other;
                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                  22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Human hereditary hemochromatosis 24d2 mutation DNA
                                                                                                                                                                                                                                                                Score 301; DB 22;
Pred. No. 1e-79;
; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HH; hereditary hemochromatosis; chelation agent; T-cell differentiation factor; iron overload; ds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ruddy D,
Disclosure; Fig 3; 108pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gnirke A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BP.
                                                                                                                                                                                                                                                                                                          ;
0
                                                                                                                                                                                                                                                             Query Match 100.0%;
Best Local Similarity 100.0%;
Matches 301; Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAC68427 standard; DNA; 10825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               96US-0630912.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   97US-0834497.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    96US-0632673.
96US-0652265.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (BIRA ) BIO-RAD LAB INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Drayna DT,
```

Wolff RK;

```
The present invention relates to hereditary hemochromatosis gene products. These proteins may be used to treat a patient diagnosed as having human hemochromatosis disease. It is also useful as a metal chelation agent or as a T-cell differentiation factor, and for alleviating iron overload. They may also be used in protein replacement therapy for individuals having a defective human hemochromatosis gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCCTTGCTTTTTTATTTAACCAATAATCTTTTGTATTTTATACCTGTTAAAAATTCAGA 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         New hereditary hemochromatosis gene products or polypeptides, useful for treating hereditary hemochromatosis in a patient, and as a metal chelation agent alleviating iron overload -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            241 AATGTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Human; histocompatibility iron loading protein; HFE protein; major histocompatibility complex; non-classical class I gene; chromosome 6p; iron disorder; haemochromatosis; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Genomic DNA of a histocompatibility iron loading (HFE) gene.
                                 Tsuchihashi Z,
                                                                                                                                                                                                                                                                                                                                                                                             Seguence 10825 BP; 2999 A; 2252 C; 2648 G; 2926 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 301; DB 22;
Pred. No. 1e-79;
; Mismatches 0;
                                   Gnirke A, Ruddy D,
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
100.0%; Score 301; D
Best Local Similarity 100.0%; Pred. No. 1e-
Matches 301; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
1028..1324
/*tag= a
                                                                                                                                                                                                                          Disclosure; Fig 3; 108pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAA96794 standard; cDNA; 12146 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /number= 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first entry)
(BIRA ) BIO-RAD LAB INC
                                     Thomas WJ, Drayna DT,
                                                                                            WPI; 2001-006341/01
                                                                                                                P-PSDB; AAB36872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4870 c 4870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       301 C 301
                                                         Feder JN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Key
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
AAA96794
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
     0
                                                                                                                                                                     The present invention relates to hereditary hemochromatosis gene products. These proteins may be used to treat a patient diagnosed as having human hemochromatosis disease. It is also useful as a metal chelation agent or as a T-cell differentiation factor, and for alleviating iron overload. They may also be used in protein replacement therapy for individuals having a defective human hemochromatosis gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                              tgggaagggactttctcaatcctagagtctctaccttataattgagatgtatgagacagc 4689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4750 gocottgotttttatttaaccaataatcttttgtatatttatacctgttaaaaattcaga 4809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCCTTGCTTTTTTTTAACCAATAATCTTTTGTATATTTTATACCTGTTAAAATTCAGA 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            241 AATGTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG 300
                                                                                                                                                                                                                                                                                                                                                                                                                                      1 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGTCCCTCTCCCAAATTC 60
                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                           New hereditary hemochromatosis gene products or polypeptides, useful for treating hereditary hemochromatosis in a patient, and as a metal chelation agent alleviating iron overload -
                                                                                                                                                                                                                                                                                                                                                            tch 100.0%; Score 301; DB 22; Length 10825; al Similarity 100.0%; Pred. No. 1e-79; 301; Conservative 0; Mismatches 0; Indels 0;
                                                                                                                                                                                                                                                                                                         Sequence 10825 BP; 2998 A; 2252 C; 2649 G; 2926 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Human hereditary hemochromatosis 24d1/2 mutation DNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HH; hereditary hemochromatosis; chelation agent; T-cell differentiation factor; iron overload; ds.
                                                                                                                                       Disclosure; Fig 3; 108pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAC68428 standard; DNA; 10825 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           96US-0630912.
96US-0632673.
96US-0652265.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         97US-0834497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
     WPI; 2001-006341/01
                         P-PSDB; AAB36871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo saptens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         04-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16-APR-1996;
23-MAY-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US6140305-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              04-APR-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    31-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4870 c 4870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301 C 301
                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local S:
Matches 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAC68428;
```

181

ò 요 ò g ò

g ð g

a

ò

S

RESULT AAC68428

ö

Gaps

ö

Indels

Length 10825;

Gaps

.; 0

5639

300

```
Cytostatic; immunosuppressive; nootropic; neuroprotective; antiviral; antiallergic; hepatotropic; antidiabletic; antiinflammatory; antiulcer; vulnerary; anticonvulsant; antidecterial; antifungal; antiparasitic; cardiant; gene therapy; cancer; immune disorder; cardiovascular disorder; neurological disease; infection; human; secreted protein;
                                                                                   5460 ggcacggaatccctggttggagtttcagaggtggctgagggctgtgtgccctccaaattc 5519
                                                                                                                                               5520 tgggaagggactttctcaatcctagagtctctaccttataattgagatgtatgagacagc 5579
                                                                                                                                                                                                                                                                                                                                          TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 120
                                                                  1 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGCCTCTCCAAATTC 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Human musculoskeletal system related polynucleotide SEQ ID NO 3112.
                                                                                                                                                                                              CACAAGTCATGGGTTTAATTTCTTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATG
                                                                                                                                                                                                                          5580 cacaagtcatgggtttaatttctttctccatgcatatggctcaaagggaagtgtctatg
                                                                                                                                                                                                                                                                           AATGTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCCAGCACTTTGGGAGGCCGAGG
                                                                                                                                                                                                                                                          GCCCTTGCTTTTTATTTAACCAATAATCTTTTGTATATTTATACCTGTTAAAATTCAGA
     Length 12146;
                                      Indels
     Score 301; DB 21;
Pred. No. 1.1e-79;
                                    Mismatches
 100.0%; Sc
100.0%; Pr
tive 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAL36747 standard; DNA; 5749 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2000US-0180628.
2000US-0184664.
2000US-0186350.
2000US-0189874.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2000US-0190076.
2000US-0198123.
2000US-0205515.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17-JAN-2001; 2001WO-US01338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2000US-0209467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2000US-0214886.
2000US-0215135.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2000US-0216647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2000US-0216880.
2000US-0217487.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2000US-0217496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2000US-0220963
2000US-0220964
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             musculoskeletal system; ds
                                    Conservative
                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO200155367-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   02-MAR-2000;
116-MAR-2000;
118-MAR-2000;
118-APR-2000;
119-MAY-2000;
28-JUN-2000;
28-JUN-2000;
30-JUL-2000;
07-JUL-2000;
11-JUL-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       04-FEB-2000;
24-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               08-JAN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        02-AUG-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                  5760 c 5760
                                    301;
                                                                                                                                                                                                                                                                                                                                                                                      301 C 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAL36747;
      Query Match
                       Local
                     Best Loca
Matches
                                                                                                                                61
                                                                                                                                                                                            121
                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                        5640
                                                                                                                                                                                                                                                                                                                        241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAL36747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The present sequence represents the human histocompatibility iron loading (HFE) gene. The HFE gene is a major histocompatibility (MHC) non-classical class I gene located on chromosome 6p. Mutations in the gene lead to iron disorders. The specification describes a method for disorder in a mammal. The method comprises determining the presence of disorder in a mammal. The method comprises determining the presence of is not a C to G missense mutation at nucleotide 187 of the sequence given in A96769 (Genbank Accession number U60319). The presence of the mutation indicates the disorder or the genetic susceptibility to the disorder. The method is used to diagnose an iron disorder.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Diagnosing an iron disorder e.g. hemochromatosis or a genetic susceptibility to develop it, by determining the presence of a mutation in exon 2 or an intron of a histocompatibility iron loading nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                it.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              e.g. haemochromatosis, or a genetic susceptibility to develop
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 12146 BP; 3383 A; 2474 C; 2911 G; 3378 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Barton JC;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Example 1; Page 21-28; 55pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sawada-Hirai R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (BILL-) BILLUPS-ROTHENBERG INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /number= 6
10206..10637
/*tag= m
                                                                                                                                                                                                                                                                                                                                                                                                                                                            /number= 6
9051..10205
/*tag= 1
                                                                                                                                                                                       5401..6493
/*tag= f
/number= 3
6494..6769
/*tag= g
/number= 4
                                                                                                                                                                                                                                                                                                                                                                                                                            7995..9050
/*tag= k
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      24-MAR-2000; 2000WO-US07982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      99US-0277457
                                                                                                                           /number= 2
                                                                                                                                                                                                                                                                                                                                6928..7041
/*tag= 1
                                                                                                                                                                                                                                                                                                                                                                             7042..7994
/*tag= j
/number= 5
1325..4651
/*tag= b
                                                                                                                                                                                                                                                                                     5770..6927
/*tag= h
                                              1652..4915
                                                                                                                                                           /*tag= e
/number= 3
                                                                                             1916..5124
                                                                                                              b
                                                                 /*tag= c
                                 'number=
                                                                              'number⇒
                                                                                                                                                                                                                                                                                                                                                                   number-
                                                                                                                                                                                                                                                                                                                     number-
                                                                                                              *tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 2000-647244/62.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO200058515-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Rothenberg BE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      26-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        05-0CT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             intron
intron
                                                                                             intron
                                                                                                                                                                                         intron
                                                                                                                                                                                                                                                                                     intron
                                                                                                                                                                                                                                                                                                                                                                                 intron
                                                exon
                                                                                                                                            exon
                                                                                                                                                                                                                                        exon
                                                                                                                                                                                                                                                                                                                                    exon
                                                                                                                                                                                                                                                                                                                                                                                                                                exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  acid
```

2000US-0224518

26-JUL-2000;

```
20000S - 0231414.
2000US - 0232080.
2000US - 0232381.
2000US - 0232397.
2000US - 0232398.
2000US - 0232398.
2000US - 0232401.
2000US - 0232401.
2000US - 0234223.
2000US - 0234223.
2000US - 0234997.
2000US - 02358836.
2000US - 02358836.
2000US - 02358836.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2000US-0239935.
2000US-0239937.
2000US-0240960.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2000US-0241808.
2000US-0241809.
2000US-0241826.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2000US-0244617.
2000US-0246474.
2000US-0246475.
2000US-0246475.
2000US-0246476.
                               2000US-0225214.
2000US-0225266.
2000US-0225267.
                                                                                                                                                                                                                                 2000US-0227009.
2000US-0228924.
2000US-0229287.
                                                                                                                                                                                                                                                                                                                                        2000US-0229513.
2000US-0230437.
2000US-0230438.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2000US-0236368.
2000US-0236369.
2000US-0236370.
2000US-0236802.
                                                                            2000US-0225268.
2000US-0225270.
2000US-0225447.
                                                                                                                                                                                                                                                                                                                                                                                                  2000US-0231243.
2000US-0231244.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2000US-0237039
2000US-0237040
                                                                                                                                                                    2000US-0226279
2000US-0226681
                                                                                                                                                                                                  2000US-0226868
2000US-0227182
                                                                                                                                                                                                                                                                            2000US-0229343
2000US-0229344
                                                                                                                                                                                                                                                                                                            2000US-0229345
                                                                                                                                                                                                                                                                                                                        2000US-0229509
                                                                                                                                                                                                                                                                                                                                                                                     2000US-0231242
                                                                                                                                                                                                                                                                                                                                                                                                                                2000US-0231413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2000US-0241221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2000US-0241785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2000US-0241786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2000US-0241787
14 - AUG - 2000) 1
15 - AUG - 2000) 1
16 - AUG - 2000) 1
17 - AUG - 2000) 1
18 - AUG - 2000) 1
18 - AUG - 2000) 1
19 - AUG - 2000) 1
10 - AUG - 2000) 1
10 - AUG - 2000) 1
11 - AUG - 2000) 1
12 - AUG - 2000) 1
13 - AUG - 2000) 1
14 - AUG - 2000) 1
15 - AUG - 2000) 1
16 - AUG - 2000) 1
17 - AUG - 2000) 1
18 - AUG - 2000) 1
18 - AUG - 2000) 1
19 - AUG - 2000) 1
11 - AUG - 2000) 1
11 - AUG - 2000) 1
11 - AUG - 2000) 1
12 - AUG - 2000) 1
13 - AUG - 2000) 1
14 - AUG - 2000) 1
15 - AUG - 2000) 1
16 - AUG - 2000) 1
17 - AUG - 2000) 1
18 - AUG - 2000) 1
18 - AUG - 2000) 1
19 - AUG - 2000) 1
19 - AUG - 2000) 1
10 - AUG - 2000) 1
11 - AUG - 2000) 1
11 - AUG - 2000) 1
12 - AUG - 2000) 1
13 - AUG - 2000) 1
14 - AUG - 2000) 1
15 - AUG - 2000) 1
16 - AUG - 2000) 1
17 - AUG - 2000) 1
18 - AUG - 2000) 1
19 - AUG - 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-NOV-2000;
08-NOV-2000;
08-NOV-2000;
08-NOV-2000;
08-NOV-2000;
```

```
05-DEC-2000; 2000US-0256719.
06-DEC-2000; 2000US-0251479.
08-DEC-2000; 2000US-0251865.
08-DEC-2000; 2000US-0251868.
08-DEC-2000; 2000US-0251869.
                  20000S-0246523
20000S-0246524
20000S-0246525
20000S-0246527
20000S-0246528
20000S-0246528
20000S-0246610
20000S-0246610
20000S-0246611
20000S-0246611
20000S-0249208
20000S-0249209
20000S-0249212
20000S-0249212
20000S-0249213
20000S-0249213
20000S-0249213
                                                                                                                                                                                                                                                                                                                                                                                                                             20000S-0249245
20000S-0249245
20000S-0249264
20000S-0249265
20000S-0249297
20000S-0249309
20000S-0249309
20000S-0249309
20000S-0251030
20000S-0251030
                                                                                                                                                                                                                                                                                                                                                                             2000US-0249216.
2000US-0249217.
2000US-0249218.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     05-JAN-2001; 2001US-0259678
08 - NOV - 2000; 2 17 - NOV - 20
```

SM (HUMA-) HUMAN GENOME SCI INC

Ruben Rosen CA, Barash SC,

WPI; 2001-451937/48

Isolated polypeptide for treating, preventing and/ or prognosing disorders related to the musculoskeletal system including musculoskeletal cancers and also for testing and detection e.g. diagnosis -

Example 2; SEQ ID NO 3112; 781pp + Sequence Listing; English.

The invention relates to novel genes (AAL34669-AAL37666) and proteins (ABB03087-ABB04109) associated with the musculoskeletal system useful for preventing, treating or ameliorating medical conditions e.g. by protein or gene therapy. The genes are isolated from a range of human tissues disclosed in the specification. The nucleic acids, proteins, antibodies and (ant)agonists are useful in the diagnosis, treatment and prevention of: (a) cancer, e.g. breast and ovarian cancer and prevention of: (a) cancer, e.g. breast and ovarian cancer and other cancers of the adrenal gland, bone, bone marrow, breast, gastrointestinal tract, liver, lung, or urogenital; (b) immune disorders e.g. Addison's disease, allergies, autoimmune haemolytic anaemia, autoimmune thyroiditis, diabetes mellitus, Crohn's disease, multiple sclerosis, rheumatoid arthritis and ulcerative colitis; (c) cardiovascular disorders such as mycardial ischaemias; (d) wound (f) infectious diseases such as viral, bacterial, fungal and

```
27-JUL-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             06-APR-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             301 C 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAH30227;
                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAH30227/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Dp
     qq
                                                                                                                                                                                                                                                                                                                                                                              Ω
                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                               qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                           δλ
                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                            Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      diagnosis; iron metabolism; NPT3; NPT4; RoRet; BTF1; BTF2; BTF3; BTF4; BTF5; milk protein; lupus; Sjogren's syndrome; hypophosphatemia; type 1 sodium transport gene; ss.
parasitic infections.

Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                           690 cacaagtcatgggtttaatttcttctccatgcatatggctcaaagggaagtgtctatg 749
                                                                                                                                                                                                                                                             810 aatgicaaggeegggeaeggiggeteaecetigiaateeeageaetitigggaggeegagg 869
                                                                                                                                              TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 120
                                                                                                                                                                                                          CACAAGTCAIGGGITTAATTTCTTTTTCTCCAIGCATAIGGCTCAAAGGGAAGIGICIAIG 180
                                                                                                                                                                                                                                                  GCCCTTGCTTTTTATTTAACCAATAATCTTTTGTATATTATACCTGTTAAAAATTCAGA 240
                                                                                                                                                                                                                                                                                           AATGTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCCAGCACTTTGGGAGGCCGAGG 300
                                                                                                        Gaps
                                                                                                                         1 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGCCTCTCCAAATTC 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hereditary haemochromatosis subregion from an HH affected individual.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hereditary haemochromatosis gene products - used to develop products for the diagnosis and treatment of hereditary disorders in iron metabolism
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bovine butyrophilin; BT; human hereditary haemochromatosis; HFE;
                                                                                   DB 22; Length 5749;
                                                   Sequence 5749 BP; 1600 A; 1192 C; 1403 G; 1553 T; 1 other;
                                                                                                        1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Thomas WJ;
                                                                                 Query Match 99.5%; Score 299.4; DB 2:
Best Local Similarity 99.7%; Pred. No. 2.5e-79;
Matches 300; Conservative 0; Mismatches 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ruddy DA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Lauer PM,
                                                                                                                                                                                                                                                                                                                                                                                                         AAV57903 standard; DNA; 237326 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             97WO-US17658.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                97US-0852495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           96US-0724394
                                                                                                                                                                                                                                                                                                                                                                                                                                                   (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Feder JN, Kronmal GS, La
Tsuchihashi Z, Wolff RK;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (PROG-) PROGENTIOR INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 1998-240014/21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WO9814466-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           30-SEP-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                07-MAY-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-OCT-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   21-DEC-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        09-APR-1998,
                                                                                                                                                                                                                                                                                                                                   301 C 301
                                                                                                                                                                                                                                                                                                                                                        c 870
                                                                                                                                                                                                                                                                                                                                                                                                                                AAV57903;
                                                                                                                                                                                     630
                                                                                                                                                                                                                                                                                                                                                        870
                                                                                                                                             570
                                                                                                                                                                 61
                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                           241
                                                                                                                                                                                                          121
  SSSSX
                                                                                                                                            셤
                                                                                                                                                                 ð
                                                                                                                                                                                   Б
                                                                                                                                                                                                         δ
                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                     QQ
                                                                                                                                                                                                                                                                                                                                                                                                                               QΥ
                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                   ò
```

```
products from the human haemochromatosis gene. The present sequence represents a hereditary haemochromatosis subregion from an hereditary haemochromatosis subregion from an hereditary haemochromatosis subregion from an hereditary haemochromatosis (HR) affected individual. Also described is a method to determine the presence or absence of the common hereditary haemochromatosis (HFE) gene mutation in an individual comprising:

(a) providing DNA or RNA from the individual; and (b) assessing the DNA or RNA for the presence or absence of a haplotype or genotype where the presence or absence of the haplotype genotype indicates the likely presence of the HFE gene mutation in the genome of the individual. The HFE gene sequences from the present invention can be used to develop products for use in the diagnosis and treatment of HFE. The present invention also describes BTF genes, which are homologues of the milk protein butyrophilin (FF), and can be used in the production of agonists and antagonists of BT function. Also described are: (1) a RoRet gene which can be used to develop products for the study, diagnosis and treatment of lupus and Sjogren's syndrome, and (2) NPT3 and can can be used or homologues of a type 1 sodium transport gene, and can
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Human colon cancer cell line Km12L4-A cDNA library derived sequence #161.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Human; diagnosis; colon cancer; cancer; malignant; chromosome mapping; detection; colon cancer cell line KmlZL4-A; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGCCTCTCCCAAATTC 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CACAAGTCATGGGTTTAATTTCTTTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181 GCCCTTGCTTTTTATTTAACCAATAATCTTTTGTATATTTATACCTGTTAAAAATTCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      42350 GCCCTTGCTTTTTATTTAACCAATAATCTTTGTATATTTATACCTGTTAAAAATTCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              241 AATGTCAAGGCCGGGCCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  97.9%; Score 294.6; DB 19; Length 237326; 98.7%; Pred. No. 2.7e-77; 1ve 0; Mismatches 4; Indels 0; G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 237326 BP; 69596 A; 48904 C; 48217 G; 70609 T; 0 other;
                                                                                present invention describes hereditary haemochromatosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          similarly be used for hypophosphatemia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAH30227 standard; cDNA; 429 BP
Claim 1; Fig 9; 209pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 97.9 Best Local Similarity 98.7 Matches 297; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WO200018916-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        42230 C 42230
```

```
2000US-0198123
2000US-0205515.
2000US-0219467.
2000US-0215135.
2000US-0215135.
2000US-0217480.
2000US-0217480.
2000US-0217480.
2000US-0217480.
2000US-0217480.
                                              17-JAN-2001; 2001WO-US01354
WO200157182-A2.
                                                                                                     02-MAR-2000; 2
16-MAR-2000; 2
17-MAR-2000; 2
18-APR-2000; 2
19-MAY-2000; 2
07-UN-2000; 2
30-JUN-2000; 2
                                                                                                                                                                                                   07-JUL-2000;
07-JUL-2000;
11-JUL-2000;
11-JUL-2000;
                                                                                                                                                                                                                                                                                                                     14-AUG-2000;
14-AUG-2000;
14-AUG-2000;
14-AUG-2000;
14-AUG-2000;
                                                                                                                                                                                                                                                                                                                                                                                                       14-AUG-2000;
14-AUG-2000;
18-AUG-2000;
                                                                                                                                                                                                                                                              26-JUL-2000;
26-JUL-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14-SEP-2000;
                                                                                                                                                                                                                                                                                               14-AUG-2000;
14-AUG-2000;
                                                                                                                                                                                                                                                                                                                                                                                 14-AUG-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                          22-AUG-2000;
22-AUG-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       08-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       L2-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   14-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   22-AUG-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              23-AUG-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     05-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            06-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      06-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   08-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              08-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            08-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    08-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              08-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           08-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         27-SEP-2000;
27-SEP-2000;
                      09-AUG-2001
The present invention describes a library of polynuclectides comprising 1079 nuclectide sequences (given in AAH30067 to AAH3115). Also described are: (1) an isolated polynuclectide (I) having at least 90% identity to one of the 1079 sequences; (2) a recombinant host cell containing (1); (3) an isolated polypeptide (II) encoded by (1); (4) an antibody that specifically binds to (II); (5) a vector comprising (1); and (6) a method of detecting differentially expressed genes correlated with a cancerous state of a mammalian cell comprising detecting a gene product encoded by 65 fthe 1079 sequences given in the specification. The polyvacientides are used to monitor patients having for susceptible) to cancer to detect potentially malignant events at a molecular level before they are oftentially malignant events at a molecular level before they are detectable at a gross morphological level. The polyvaciectotides are also useful for monitoring the efficacy of various therapies and preventive interventions. Polynuclectide probes based on the disclosed sequences are useful for chromosome mapping and detection of transcription levels. The 1079 polynuclectide sequences were derived from a human colon cancer cell line Km12L4-A cDNA library.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                         PD, Sudduth-Klinger J;
C, Pot D, Kassam A;
n M, Drmanac S, Labat I;
Stache-Crain B;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      183 CCTTGCTTTTTATTTAACCAATAATCTTTTGTATATTTATACCTGTTAAAAATTCAGAAA 242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Human; immune; haematopoietic; immune/haematopoietic antigen; cancer; cytostatic; gene therapy; vaccine; metastasis; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Gaps
                                                                                                                                                                                                                         Polynucleotide library comprising 1079 defined sequences, useful in the form of an array to detect cancer or susceptibility to cancer -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Human immune/haematopoietic antigen genomic sequence SEQ ID NO:19848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 429 BP; 142 A; 75 C; 75 G; 113 T; 24 other;
                                                                                                                                         Escobedo J, Innis MA, Garcia PD, 3
Glese K, Randazzo F, Kennedy GC, PP,
nanac R, Cikvenjakov R, Dickson M,
Kita D, Garcia V, Jones LW, Staci
                                                                                                                                                                                                                                                              Claim 1; Page 229-230; 502pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAK65036 standard; DNA; 26110 BP
                                           98US-0102180.
98US-0102380.
98US-0103815.
98US-0105877.
           99WO-US22226
                                 98US-0102161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ouery Match
Best Local Similarity 69.79
                                                                                                                              Williams LT, Escopeuc Reinhard C, Giese K, F
                                                                                                                                                                 Lamson G, Drmanac R,
Leshkowitz D, Kita D,
                                                                                                      (CHIR ) CHIRON CORP. (HYSE-) HYSEQ INC.
                                                                                                                                                                                                    WPI; 2000-293155/25.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       06-NOV-2001
           23-SEP-1999;
                                                                    08-OCT-1998;
27-OCT-1998;
                                 28-SEP-1998;
                                              28-SEP-1998;
                                                        29-SEP-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAK65036;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAK65036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
```

2000US-0225266. 2000US-0225267. 2000US-0225268. 2000US-0225268.

2000US-0225447

2000US-0224518. 2000US-0224519. 2000US-0225214.

2000US-0225213

2000US-0189874 2000US-0190076 2000US-0226681. 2000US-0226868. 2000US-0227182.

000US-0225759 000US-0226279 2000US-0227009. 2000US-0228924. 2000US-0229287.

0000S-0229343 000US-0229344 00000S-0229345 000US-0229513 2000US-0231243.

2000US-0231413 2000US-0231414 0000US-0232080 000US-0232081 2000US-0231968 .000US-0232398.

000US-0232397

2000US-0232400 2000US-0233063 2000US-0233064 2000US-0233065 2000US-0234223 2000US-0235836

0000S-0230437

000US-0231242

us-09-497-957-3\_4570-4870.rng

```
200005-0249210.
200005-0249211.
200005-0249212.
200005-0249213.
200005-0249213.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (HUMA-) HUMAN GENOME SCI INC.
                                                                                                                                                                                                                                                                                                                                                                                    2000US-0246474.
2000US-0246475.
2000US-0246476.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2000US-0249217.
2000US-0249218.
2000US-024924.
2000US-0249245.
2000US-0249265.
                                                                                                                                                                                                                                                        2000US-0241785.
2000US-0241786.
2000US-0241787.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2000US-0249297.
2000US-0249299.
2000US-0249300.
                                                                                                                                                                                                                                                                                                             2000US-0241808.
2000US-0241809.
                                                                                                                                                                                                                                                                                                                                                  2000US-0241826.
2000US-0244617.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2000US-0246532.
2000US-0246609.
                                                                                                                                                                                                                                                                                                                                                                                                                                                           2000US-0246478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0000S-0246611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2001US-0259678.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2000US-0246527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2000US-0249209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2000US-0249216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2000US-0250391
2000US-0251030
                                                                                     02-0CT-2000;
02-0CT-2000;
02-0CT-2000;
02-0CT-2000;
13-0CT-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-DEC-2000;
01-DEC-2000;
05-DEC-2000;
05-DEC-2000;
06-DEC-2000;
08-DEC-2000;
08-DEC-2000;
08-DEC-2000;
08-DEC-2000;
                                                                                                                                                                                                                                                                     20 - OCT - 2000;
00 - O
                                                                                                                                                                                                                    20-OCT-2000;
20-OCT-2000;
20-OCT-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          17-NOV-2000;
17-NOV-2000;
17-NOV-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       17-NOV-2000;
17-NOV-2000;
                                                                                                                                                                                                    13-OCT-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17-NOV-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       05-JAN-2001;
```

Barash SC, Ruben SM;

Rosen CA,

```
AAK54951 to AAK64702 encode the human immune/haematopoietic antigen (I) and a acid sequences given in AAM82170 to AAM91921. (I) have cytostatic activity, and can be used in gene therapy and vaccine production. (I) proteins and polyuucleotides may be used in the prevention, diagnosis and treatment of diseases associated with inappropriate (I) expression. For example, they may be used to treat disorders associated with decreased expression by rectifying mutations or deletions in a patient's genome that affect the activity of (I) by expressing inactive proteins or to supplement the patients own production of (I). Additionally, (I) polynucleotides may be used to produce the secreted (I), by inserting the unclair acids into a host cell and culturing the cell to express the protein. (I) proteins and polynucleotides may be used to prevent, diagnose and treat immune/haematopoietic related diseases, especially to AAK87694 represent human immune/manatopoietic artigen genomic sequences from the present invention. AAK4942 to AAK5450 and AAM82169 represent sequences used in the exemplification of the present invention.
                                                  Nucleic acids encoding human immune/hematopoietic antigen polypeptides, useful for preventing, diagnosing and/or treating cancers and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8013 tctgttttatccaactttttaatgttctttcaaatcctcttaaaaactaagaatttttagg 8072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     190 ITTTATTTAACCAATAATCTTTTGTATATTTATACCTGTTAAAAATTCAGAAATGTCAAG 249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Human; immune; haematopoietic; immune/haematopoietic antigen; cancer; cytostatic; gene therapy; vaccine; metastasis; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Human immune/haematopoietic antigen genomic sequence SEQ ID NO:33338.
                                                                                                                            Disclosure; SEQ ID NO 19848; 3071pp + Sequence Listing; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 61.4; DB 22; Length 26110;
Pred. No. 5.3e-08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 250 GCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 26110 BP; 7464 A; 4942 C; 5567 G; 8137 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    31; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAK78526 standard; DNA; 26110 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20.48;
72.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2000US-0190076.
2000US-0198123.
2000US-0205515.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              17-JAN-2001; 2001WO-US01354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2000US-0179065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2000US-0180628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2000US-0184664.
2000US-0186350.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2000US-0189874
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2000US-0209467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity 72.1<sup>s</sup>
Matches 80; Conservative
               WPI; 2001-483426/52.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO200157182-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                04-FEB-2000;
24-FEB-2000;
16-MAR-2000;
17-MAR-2000;
117-MAR-2000;
18-APR-2000;
07-JUN-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    07-NOV-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   31-JAN-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         09-AUG-2001
                                                                                         metastasis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAK78526;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAK78526
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δλ
```

ö

```
2000US-0234223
2000US-0234274.
2000US-0234997.
2000US-0235484.
2000US-0235834.
2000US-0214886.
2000US-0215135.
2000US-021647.
2000US-0217487.
2000US-0217496.
2000US-0217496.
2000US-0220963.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2000US-0236327.
2000US-0236367.
2000US-0236368.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2000US-0236369.
2000US-0236370.
2000US-0236802.
2000US-0237037.
                                                                                                                            20000S-0224518.
2000US-0224519.
2000US-0225213.
2000US-0225214.
                                                                                                                                                                                    2000US-0225266.
2000US-0225267.
2000US-0225268.
                                                                                                                                                                                                                            20000S-0225270.
2000US-0225447.
2000US-0225757.
2000US-0225758.
2000US-0225758.
                                                                                                                                                                                                                                                                                                                             2000US-0226868.
2000US-0227182.
2000US-0227009.
                                                                                                                                                                                                                                                                                                                                                                     20000S-0228924.
20000S-0229287.
2000US-0229343.
2000US-0229344.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2000US-0230437.
2000US-0230438.
2000US-0231242.
2000US-0231244.
2000US-0231414.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2000US-0232080.
2000US-0232081.
2000US-0231968.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20000S-0232397.
2000US-0232398.
2000US-0232399.
2000US-0232400.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2000US-0232401,
2000US-0233063,
2000US-0233064,
2000US-0233065.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2000US-0239937.
2000US-0240960.
2000US-0241221.
2000US-0241785.
                                                                                                                                                                                                                                                                                                                                                                                                                             2000US-0229345.
2000US-0229509.
2000US-0229513.
                                                                                                                                                                                                                                                                                                               20000S-0226681
28 JUN - 2000 | 200 JUN
```

```
20000S-0241786.
2000US-0241787.
2000US-0241809.
2000US-02418126.
2000US-0244617.
2000US-0246477.
2000US-0246477.
2000US-0246477.
2000US-0246477.
2000US-0246527.
                                                                                                                                                                                                                                                                                                                                                                                                                              20000S-0249211.
20000S-0249212.
20000S-0249213.
20000S-0249214.
20000S-0249215.
20000S-0249215.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20000S-0249264
20000S-0249265
20000S-0249297
20000S-0249299
20000S-0249300
20000S-0249300
20000S-0250160
20000S-0251030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             200005-0251856
200005-0251868
200005-0251869
200005-0251869
200005-0251999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2000US-0249218.
2000US-0249244.
2000US-0249245.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2000US-0251988.
2000US-0256719.
2000US-0251479.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              08-DEC-2000; 2000US-0251990.
11-DEC-2000; 2000US-0254097.
05-JAN-2001; 2001US-0259678.
20-0CT-2000; 20-0C
```

SM; (HUMA-) HUMAN GENOME SCI INC. Ruben Barash SC, CA, Rosen

WPI; 2001-483426/52

Nucleic acids encoding human immune/hematopoietic antigen polypeptides, useful for preventing, diagnosing and/or treating cancers and metastasis

Disclosure; SEQ ID NO 33338; 3071pp + Sequence Listing; English

AAK54951 to AAK64702 encode the human immune/haematopoietic antigen (I) amino acid sequences given in AAM82170 to AAM91921. (I) have cytostatic activity, and can be used in gene therapy and vaccine production. (I) proteins and polynucleotides may be used in the prevention, diagnosis and treatment of diseases associated with inappropriate (I) expression. For example, they may be used to treat disorders associated with decreased

```
2000US-0229509.
2000US-0229513.
2000US-0230437.
2000US-0230438.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2000US - 0231413
2000US - 0231414
2000US - 0232081
2000US - 0232081
2000US - 023239
2000US - 023239
2000US - 023239
2000US - 0232401
2000US - 02323636
2000US - 023636
2000US - 02360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2000US-0246526
                                                                     14 - AUG - 2000; 2 22 - AUG - 2000; 2 23 - AUG - 2000; 2 24 - AUG - 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             27-SEP-2000; 2
27-SEP-2000; 2
29-SEP-2000; 2
29-SEP-2000; 2
29-SEP-2000; 2
29-SEP-2000; 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21-SEP-2000; 2
25-SEP-2000; 2
25-SEP-2000; 2
26-SEP-2000; 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20-OCT-2000;
20-OCT-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     02-OCT-2000;
02-OCT-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    29-SEP-2000;
           ö
expression by rectifying mutations or deletions in a patient's genome that affect the activity of (1) by expressing inactive proteins or to supplement the patients own production of (1). Additionally, (1) polynucleotides may be used to produce the secreted (1), by inserting the nucleic acids into a host cell and culturing the cell to express the protein. (1) proteins and polynucleotides may be used to prevent, diagnose and treat immune/haematopoietic-related diseases, especially cancers and cancer metastases of haematopoietic-derived cells. AAK64703 to AAK87694 represent human immune/haematopoietic antigen genomic sequences from the present invention. AAK6492 to AAK54950 and AAM82169 represent sequences used in the exemplification of the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                     190 TITTATTTAACCAATAATCTTTTGTATATTTATACCTGTTAAAAATTCAGAAATGTCAAG 249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Human; immune; haematopoietic; immune/haematopoietic antigen; cancer; cytostatic; gene therapy; vaccine; metastasis; ds.
                                                                                                                                                                                                                                                                                                                                                                                  0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Human Immune/haematopoietic antigen genomic sequence SEQ ID NO:34513
                                                                                                                                                                                                                                                                                                                                  Query Match 20.4%; Score 61.4; DB 22; Length 26110; Best Local Similarity 72.1%; Pred. No. 5.3e-08; Matches 80; Conservative 0; Mismatches 31; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        250 GCCGGGCACGCIGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG 300
                                                                                                                                                                                                                                                                        Sequence 26110 BP; 7464 A; 4942 C; 5567 G; 8137 T; 0 other
                                                                                                                                                                                                                                                                                                                                                                                0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAK79701 standard; DNA; 584 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2000US-0216647.
2000US-0216880.
2000US-0217487.
2000US-0217496.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2000US-0218290.
2000US-0220963.
2000US-0220964.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2000US-0205515.
2000US-0209467.
2000US-0214886.
2000US-0215135.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2000US-0184664.
2000US-0186350.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2000US-0198123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2000US-0225266
2000US-0225267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17-JAN-2001; 2001WO-US01354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              07-NOV-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WO200157182-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       02-MAR-2000;
116-MAR-2000;
118-APR-2000;
119-MAY-2000;
07-JUN-2000;
30-JUN-2000;
07-JUL-2000;
07-JUL-2000;
111-JUL-2000;
111-JUL-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            31-JAN-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          14-AUG-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    09-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAK79701;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAK79701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5555555555555%&
```

Query Match

```
Barash SC, Ruben SM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (HUMA-) HUMAN GENOME SCI INC
                                                                                                           2000US-0246611
                                                                                                                                                                                                                                                                                                                                                                                                                                            2000US-0249245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2000US-0249297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2000US-0250160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2000US-0251479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2000US-0249299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2000US-0256719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2000US-0250391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 2001-483426/52
08-NOV-2000; 208-NOV-2000; 208-NOV-2000; 208-NOV-2000; 208-NOV-2000; 208-NOV-2000; 217-NOV-2000; 217
                                                                                                                                                                                                                     17-NOV-2000;
17-NOV-2000;
17-NOV-2000;
17-NOV-2000;
17-NOV-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                   17-NOV-2000;
17-NOV-2000;
17-NOV-2000;
17-NOV-2000;
17-NOV-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17-NOV-2000;
17-NOV-2000;
01-DEC-2000;
05-DEC-2000;
05-DEC-2000;
06-DEC-2000;
08-DEC-2000;
08-DEC-2000;
08-DEC-2000;
08-DEC-2000;
08-DEC-2000;
                                                                                                                                                                                                                                                                                                                                                17-NOV-2000;
17-NOV-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                   NOV-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Rosen CA,
```

Nucleic acids encoding human immune/hematopoletic antigen polypeptides, useful for preventing, diagnosing and/or treating cancers and metastasis -Disclosure; SEQ ID NO 34513; 3071pp + Sequence Listing; English.

AAK54951 to AAK64702 encode the human immune/haematopoietic antigen (1)
amino acid sequences given in AAM82170 to AAM91921. (1) have cytostatic
activity, and can be used in gene therapy and vaccine production. (I)
proteins and polynucleotides may be used in the prevention, diagnosis and
treatment of diseases associated with inappropriate (I) expression. For
example, they may be used to treat disorders associated with decreased
expression by rectifying mutations or deletions in a patient's genome
that affect the activity of (I) by expressing inactive proteins or to
supplement the patients own production of (I). Additionally, (I)
cuplement caids into a host cell and culturing the cell to express the
protein. (I) proteins and polynuclectides may be used to prevent,
diagnose and treat immune/haematopoietic-related diseases, especially
cancers and cancer metastases of haematopoietic-derived cells. AAK64703
to AAK87694 represent human immune/haematopoietic antigen genomic
sequences from the present invention. AAK5492 to AAK54950 and AAM82169
represent sequences used in the exemplification of the present invention.

Sequence 584 BP; 196 A; 109 C; 135 G; 144 T; 0 other;

```
Human; reproductive system related antigen; reproductive system disorder;
                                                                                                                                             105 AGAIGTATGAGACAGCCACAAGTCATGGGTTTAATTTTCTTTTCTCCATGCATATGGCTCA 164
                                                                                     165 AAGGGAAGTGTCTATGGCCCTTGCTTTTATTTAACCAATAATCTTTTGTATATTTTATAC 224
                                                              155 agataaacaaaggaggaaagattcatgtaagaaaatgccatgcaactacaaaatgggata
                                                                                                    225 CTGTTAAAAATTCAGAAATGTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCA
                                                                                                                                                                                                                                                                                                                       Human reproductive system related antigen DNA SEQ ID NO: 5454.
20.3%; Score 61; DB 22; Length 584; 56.9%; Pred. No. 1.7e-08; Indels ive 0; Mismatches 85; Indels
                                                                                                                                                                                                                                                      AAL02766 standard; DNA; 6534 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2000US-0198123.
2000US-0205515.
2000US-0209467.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2000US-0189874.
2000US-0190076.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2000US-0214886.
2000US-0215135.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2000US-0216647.
2000US-0216880.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2000US-0217496.
2000US-0218290.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2000US-0225213.
2000US-0225214.
                                                                                                                                                                                                                                                                                                                                                                                                                                           17-JAN-2001; 2001WO-US01339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2000US-0186350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2000US-0224518
2000US-0224519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2000US-0217487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2000US-0220964
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2000US-0226279
                                                                                                                                                                            285 CTTTGGGAGGCCGAGGC 301
                                                                                                                                                                                       335 ctttgggaggccgaggc 351
                                                                                                                                                                                                                                                                                                 21-NOV-2001 (first entry)
                      Matches 112; Conservative
                                                                                                                                                                                                                                                                                                                                                      gene therapy;
           Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                               WO200155320-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    07-UNN-2000;
28-UNN-2000;
28-UNN-2000;
07-UNL-2000;
07-UL-2000;
11-UUL-2000;
11-UUL-2000;
11-UUL-2000;
26-UUL-2000;
26-UUL-2000;
26-UUL-2000;
26-UUL-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              14-AUG-2000; 2
14-AUG-2000; 2
14-AUG-2000; 2
14-AUG-2000; 2
14-AUG-2000; 2
14-AUG-2000; 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          16-MAR-2000;
17-MAR-2000;
18-APR-2000;
19-MAY-2000;
                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14-AUG-2000;
18-AUG-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                02-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                     02-AUG-2001
                                                                                                                                                                                                                                                                            AAL02766;
                                                                                                                                                                                                                                                                                                                                                       cancer;
                                                                                                                                                                                                                                             AAL02766
                                                                                     ŏ
                                                                                                           g
                                                                                                                                                      qq
                                                                                                                                                                            δ
                                                                                                                                                                                                 qq
                                                               g
                                                                                                                                 δ
```

```
PR 22-ANG-2000; 2000US-0226681.
PR 23-ANG-2000; 2000US-0226868.
PR 22-ANG-2000; 2000US-0227182.
PR 21-ANG-2000; 2000US-0227182.
PR 30-ANG-2000; 2000US-022943.
PR 10-EEP-2000; 2000US-022947.
PR 10-EEP-2000; 2000US-022947.
PR 10-EEP-2000; 2000US-022947.
PR 06-EEP-2000; 2000US-022947.
PR 08-EEP-2000; 2000US-022947.
PR 08-EEP-2000; 2000US-022947.
PR 08-EEP-2000; 2000US-022949.
PR 10-EEP-2000; 2000US-022399.
PR 10-EEP-2000; 2000US-022399.
PR 11-EEP-2000; 2000US-022399.
PR 21-EEP-2000; 2000US-02399.
PR 21-EEP-2000; 2000US-02399
```

```
The present invention provides the protein and coding sequences of a number of human reproductive system related antigens. These can be used in the prevention and treatment of reproductive system disorders, including cancer. The present sequence is a genomic sequence encoding a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Isolated nucleic acid molecule encoding a reproductive system antigen is used in preventing, treating or ameliorating a medical condition .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    137 AATTICITITCCCCATGCATATGGCTCAAAGGGAAGTGTCTATGGCCCTTGCTTTTATT 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         197 TAACCAATAATCTTTTGTATATTAATACCTGTTAAAAATTCAGAAATGTCAAGGCCGGGC 256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Disclosure; SEQ ID NO 5454; 1297pp + Sequence Listing; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ó;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 6534;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 6534 BP; 1707 A; 1511 C; 1672 G; 1644 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20.3%; Score 61; DB 22;
60.6%; Pred. No. 4.1e-08;
tive 0; Mismatches 65;
                 17-NOV-2000; 20000S-0249208.
17-NOV-2000; 20000S-0249209.
17-NOV-2000; 20000S-0249211.
17-NOV-2000; 20000S-0249211.
17-NOV-2000; 20000S-0249211.
17-NOV-2000; 20000S-0249211.
17-NOV-2000; 20000S-0249211.
17-NOV-2000; 20000S-0249211.
17-NOV-2000; 20000S-0249218.
17-NOV-2000; 20000S-0249218.
17-NOV-2000; 20000S-0249218.
17-NOV-2000; 20000S-0249218.
17-NOV-2000; 20000S-0249244.
17-NOV-2000; 20000S-0249244.
17-NOV-2000; 20000S-0249244.
17-NOV-2000; 20000S-0249244.
17-NOV-2000; 20000S-024924.
17-NOV-2000; 20000S-0249290.
17-NOV-2000; 20000S-0249290.
17-NOV-2000; 20000S-0249290.
17-NOV-2000; 20000S-0251998.
0S-DEC-2000; 20000S-0251479.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (HUMA-) HUMAN GENOME SCI INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   05-JAN-2001; 2001US-0259678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Similarity 60.6
Matches 100; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          protein of the invention
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 2001-465570/50.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Rosen CA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ŏ
PRESENTATION OF COLOR OF STREET OF S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
```

RESULT 14 AAC27863 · ID AAC27863 standard; cDNA; 344 BP.

```
Search completed: June 19, 2002, 11:01:22 Job time: 7640 sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       328
       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                 The present sequence is one of a large number of 5' ESTS derived from mRNAs encoding secreted proteins. No ORF has yet been conclusively identified within the present sequence. The 5' ESTS were prepared from total human RNAs or polyA+ RNAs derived from 30 different tissues. EST sequences usually correspond mainly to the 3' untranslated region (UTR) of the mRNA because they are often obtained from oligo-dT primed cDNA ilbraries. Such ESTs are not well suited for isolating cDNA sequences derived from the 5' ends of mRNAs and even in those cases where longer CDNA sequences have been obtained, the full 5' UTR is rarely included. S' ESTS are derived from mRNAs with intext 5' ends and can therefore be used to obtain full length cDNAs and genomic DNAs. 5' ESTS are also used in dlagnostic, forensic, gene therapy and chromosome mapping procedures.
                                                                                         sequence tag; secreted protein; cDNA isolation;
mapping; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            186 TGCTTTTTATTTAACCAATAATCTTTTGTATATTTATACCTGTTAAAATTCAGAAATGT 245
                                                                                                                                                                                                                                                                                                                         New nucleic acid that is a 5' expressed sequence tag (5' EST) for obtaining cDNAs and genomic DNAs that correspond to 5'ESTs and for diagnostic, forensic, gene therapy and chromosome mapping procedures
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    246 CAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTTGGGAGGCCGAGG 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          197 taaggccagggcacggtggctcatacctgtaatcccagcactttgggaggctgagg 251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 60.6; DB 21; Length 344;
Pred. No. 1.8e-08;
0; Mismatches 34; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 344 BP; 96 A; 79 C; 83 G; 85 T; 1 other;
                                                               Human secreted protein 5' EST, SEQ ID NO: 31938,
                                                                                                                                                                                                                                                                             Giordano J;
                                                                                                                                                                                                                                                                                                                                                                           Claim 1; SEQ ID 31938; 71pp + CD-ROM; English.
                                                                                                                                                                                                                                                                             Duclert A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human polynucleotide SEQ ID NO 6555
                                                                                                    gene therapy; chromosome mapping;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   expression and secretion vectors.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAI86495 standard; cDNA; 3242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 20.1%;
Best Local Similarity 70.4%;
Matches 81; Conservative
                                                                                                                                                                                                                           990S-0122487
                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                        expressed
                                                                                                                                                                                                                                                                            Dumas Milne Edwards J,
                                                                                                                                                                                                                                                                                                    WPI; 2000-500381/45.
                                                                                     EST;
                                                                                                                                                                                                                                                    (GEST ) GENSET
                                                                                                                           Homo sapiens.
                                                                                                                                                  EP1033401-A2
                                                                                                                                                                                                  21-FEB-2000;
                                                                                                                                                                                                                           26-FEB-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     06-NOV-2001
                                    06-OCT-2000
                                                                                                                                                                           06-SEP-2000
                                                                                      Human; 5'
             AAC27863;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAI86495;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 15
AA186495/C
XX
AC AA186
XX
DT 06-NC
XX
a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
```

ò

```
The invention relates to human polynuclectides (AAI79941-AAI93841) and the encoded proteins (AA000010-AA013910) that exhibit activity elating to cytokine, cell proliferation or cell differentiation or which may induce production of other cytokines in other cell populations. The polynuclectides and polypeptides are useful in gene therapy, vaccines or egistem therapy, The polypeptides have various cytokine-like activities, e.g. stem cell growth factor activity, hematopoissis regulating activity, tissue growth factor activity, immunomodulatory activity and activity, inhibin activity and may be useful in the diagnosis and/or treatment of cancer, leukaemia, nervous system disorders, arthritis and inflammation.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
Human; cytokine; cell proliferation; cell differentiation; gene therapy; vaccine; peptide therapy; stem cell growth factor; haematopoiesis; tissue growth factor; immunomodulatory; cancer; leukaemia; nervous system disorders; arthritis; inflammation; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                211 TIGIAIATITATACCIGITAAAAATTCAGAAATGTCAAGGCCGGGCACGGTGGCTCACCC 270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Isolated nucleic acids and polypeptides, useful for preventing diagnosing and treating e.g. leukaemia, inflammation and immune disorders -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20.1%; Score 60.6; DB 22; Length 3242; 79.1%; Pred. No. 4.2e-08; ive 0; Mismatches 19; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Claim 1; SEQ ID NO 6555; 1399pp + Sequence Listing; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 3242 BP; 949 A; 656 C; 666 G; 971 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           271 CTGTAATCCCAGCACTTTGGGAGGCCGAGGC 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTGTAATCCCAGCACTTTGGGAGGCCGAGGC
                                                                                                                                                                                                                                                                                                                                                                                                         26-FEB-2001; 2001WO-US04927.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28-FEB-2000; 2000US-0515126.
18-MAY-2000; 2000US-0577409.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity 79.1%; 72; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 2001-514838/56.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local Similarity
Matches 72; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HYSE-) HYSEQ INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Liu C,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            P-PSDB; AAO06564
                                                                                                                                                                                                                                                              WO200164835-A2.
                                                                                                                                                                                                                                                                                                                                   07-SEP-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Tang YT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
```

Appli Appli Appli Appli Appli Appli

Scoring table: Sequence:

Run on:

Searched:

Database

Result

, Appl Appli Appli

```
Sequence 3, 4, Sequence 35, 4, Sequence 3, 4, Sequence 11, 4, Sequence 81, 4, Sequence 81, 4, Sequence 7, At Sequence 2, Ap Sequence 2, Ap Sequence 2, Ap Sequence 1, Ap Se
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LOCATION: join(361..436, 3762..4025, 4235..4510, 5606..5881, LOCATION: 6040..6153, 7107..7147)

OTHER INFORMATION: /product= "Hereditary Hemochromatosis OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Feder, John N.
APPLICANT: Gnirke, Andreas
APPLICANT: Ruddy, David,
APPLICANT: Tsuchihashi, Zenta
APPLICANT: Wolff, Roger K.
TITLE OF INVENTION: Hereditary Hemochromatosis Gene
NUMBER OF SOUGHNES: 44
CORRESPONDENCE ADDRESS:
ADDRESSE: Townsend and Townsend and Crew LLP
STREET: Two Embarcadero Center, Eighth Floor
CITY: San Francisco
STRATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OPERATIOS SISTEMS: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/652,265
FILING DATE: 23-MAY-1996
CLASSIFICATION: 514
ATTONNEY/AGENT INFORMATION:
NAME: Smith, William W.
REGISTRATION NUMBER: 30,223
REFERENCE/DOCKET NUMBER: 17957-000500
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION STORMATION:
TELECOMMUNICATION STORMATION:
TELECOMMUNICATION STORMATION:
TELECOMMUNICATION STORMATION:
SEQUENCE CHARACTERISTICS:
US-09-385-982-32
US-08-870-126-7
US-09-6375-080-35
US-09-496-694B-3
US-09-128-155-16
US-09-347-114A-81
US-09-347-114A-80
US-09-347-114A-80
US-09-305-384-7
US-09-305-384-7
US-09-305-384-1
US-09-305-384-1
US-08-466-974-1
US-08-466-974-1
US-08-466-974-1
US-08-466-974-1
US-08-466-974-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 1, Application US/08652265
Patent No. 6025130
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Thomas, Winston J. APPLICANT: Drayna, Dennis T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGIH: 10825 base pairs
TYPE: nucleic acid
       2 808
14796
114796
1124796
1154796
1154796
116373
116373
116373
11652
11652
11652
11652
11652
11652
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11653
11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ZIP: 94111-3834
           118.3
118.2
118.2
118.2
118.2
118.2
119.3
117.9
117.9
117.8
117.8
117.7
117.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COUNTRY:

    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α
    α</
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-652-265-1
           June 19, 2002, 08:41:02; Search time 46.2 Seconds (without alignments) 1600.339 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 179, App
Sequence 179, App
Sequence 10, Appl
Sequence 10, Appl
Sequence 10, Appl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      27, Appl
20, Appl
21, Appl
22, Appl
79, Appl
1, Appli
1, Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Appli
Appli
Appli
Appli
Appli
Appli
Appli
Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Appl
Appl
Appl
Appl
Appl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 1, As Sequence 3, As Sequence 5, As Sequence 1, As Sequence 1, As Sequence 1, As Sequence 2, As Sequence 1, As Sequen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
1 GGCACGGAATCCCTGGTTGG.......GCACTTTGGGAGGCCGAGGC 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1: /cgn2_6/ptodata/1/ina/5A_COMB.seq:*
2: /cgn2_6/ptodata/1/ina/5B_COMB.seq:*
3: /cgn2_6/ptodata/1/ina/6A_COMB.seq:*
4: /cgn2_6/ptodata/1/ina/6B_COMB.seq:*
5: /cgn2_6/ptodata/1/ina/PCTUS_COMB.seq:*
6: /cgn2_6/ptodata/1/ina/PCTUS_COMB.seq:*
                                                   GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-652-265-3
US-08-652-265-3
US-08-652-265-7
US-08-834-497A-1
US-08-834-497A-7
US-08-834-497A-7
US-09-503-444A-1
US-09-503-444A-7
US-09-503-444A-7
US-09-503-444A-7
US-09-503-444A-7
US-09-503-444A-7
US-09-503-444A-7
US-09-277-457-27
US-08-724-394A-20
US-08-724-394A-21
US-08-724-394A-21
US-08-724-394A-21
US-08-724-394A-21
US-08-724-394A-21
US-08-724-394A-21
US-08-734-394A-21
US-08-734-394A-21
US-08-734-394A-21
US-08-738-994-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-218-207-1
US-09-338-907-179
US-09-218-207-179
US-08-257-963B-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   383533 seqs, 122816752 residues
                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-497-957-3_COPY_4570_4870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                   OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Issued_Patents_NA:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query
Match Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
10825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1000.0
1190.0
1190.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              301
301
301
301
301
301
301
301
301
58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  555.22
555.22
555.22
555.24
555.24
555.24
555.24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Minimum DB seq
Maximum DB seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score
```

Sequence

US-08-367-841A-43 PCT-US95-07201-43

```
US-08-652-265-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
/note= "No. 6025130mal or wild-type (unaffected)
Hereditary Hemochromatosis (HH) gene
allele"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4630 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 4689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121 CACAAGTCATGGGTTTAATTTCTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGCCTCTCCAAATTC 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4690 CACAAGTCATGGGTTTAATTTCTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181 GCCCTTGCTTTTTATTTAACCAATAATCTTTTGTATATTTTATACCTGTTAAAATTCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY: -
LOCATION: 3852..3891
LOCATION: JOIGE "start and stop positions for OTHER INFORMATION: /normal or wild-type (unaffected) genomic OTHER INFORMATION: sequence surrounding variant for 24d2(C) OTHER INFORMATION: allele (SEQ ID NO:41)"
                                                                                                                                                                                                                                                                                                                                                                            /note- "start and stop positions for normal or wild-type (unaffected) genomic sequence surrounding variant for 24d1(G) allele (SEQ ID NO:20)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 10825;
                                                                                                                                 OTHER INFORMATION: /note= "start and stop positions for OTHER INFORMATION: normal or wild-type (unaffected) allele OTHER INFORMATION: CDNA (SEQ ID NO:9)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                      SATURE:
NAMEKKY: allele
LOCATION: replace(1872, "c")
LOCHEN INFORMATION: /phenotype= "normal or wild-type
OTHER INFORMATION: (unaffected)"
.... THEORMATION: /label= 24d2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /phenotype= "normal or wild-type (unaffected)" /label= 24d7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /phenotype= "normal or wild-type (unaffected)" /label= 24d1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100.0%; Score 301; DB 3;
100.0%; Pred. No. 6.6e-86;
tive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURE:
NAME/KEY: allele
LOCATION: replace(3878, "a")
CTHER INFORMATION: /phenotype=
OTHER INFORMATION: (unaffected)
OTHER INFORMATION: /label= 24d;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LOCATION: replace(5834, "g")
OTHER INFORMATION: (unaffecte
OTHER INFORMATION: (laffecte
OTHER INFORMATION: /label= 24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity 100.
Matches 301; Conservative
                                                                                                                                                                                                                                                                                                                                                           5507..6023
                                                                                                                  140..7319
                                                                                                                                                                                                                                                                                                                                       OTHER INFORMATION: OTHER INFORMATION:
                                                            OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURE:
NAME/KEY: allele
                                                                               FEATURE:
NAME/KEY:
                                                                                                                    LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   $870 C 4870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-652-265-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                301 C 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
```

```
LOCATION: join(361..436, 3762..4025, 4235..4510, 5606..5881, LOCATION: 6040..6153, 7107..7147)

OTHER INFORMATION: /product= "Hereditary Hemochromatosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note-"Hereditary Hemochromatosis (HH) gene 24d1 allele"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OTHER INFORMATION: /note= "start and stop positions for OTHER INFORMATION: genomic sequence surrounding variant OTHER INFORMATION: for 24d2(C) allele (SEQ ID NO:41)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OTHER INFORMATION: /note= "start and stop positions for OTHER INFORMATION: genomic sequence surrounding variant OTHER INFORMATION: for 24d1(A) allele (SEQ ID NO:21)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OTHER INFORMATION: /note= "start and stop positions for OTHER INFORMATION: 24d1 allele cDNA (SEQ ID NO:10)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CURRENT APPLICATION DATA:
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/652,265
FILING DATE: 23-MA-1996
CLASSIFICATION: 514
ATTORNEY/AGENT IRFORMATION:
NAME: Smith, William M.
REGISTRATION NUMBER: 30,223
REFERENCE/DOCKET NUMBER: 17957-000500
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION OF $15.576-0200
INFORMATION FOR $20 ID NO: 3:
SEQUENCE CHARRACTERISTICS:
LENGTH: 10825 base pairs
                                                                                                                                                                                                                                                     Hereditary Hemochromatosis Gene
                                                                                                                                                                                                                                                                                            CORRESPONDENCE ADDRESS:
ADDRESSEE: Townsend and Townsend and Crew LLP
STREET: Two Embarcadero Center, Eighth Floor
CITY. San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                         ZIP: 94111-3834
COMPUTER READABLE FORM:
COMPUTER: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                         GENERAL INFORMATION:
APPLICANT: Thomas, Winston J.
APPLICANT: Feder, John N.
APPLICANT: Geder, John N.
APPLICANT: Griffe, Andreas
APPLICANT: Tsuchihashi, Zenta
APPLICANT: Tsuchihashi, Zenta
APPLICANT: Wolff, Roger K.
TITLE OF INVENTION: Hereditary B.
NUMBER OF SEQUENCES: 44
Sequence 3, Application US/08652265
Patent No. 6025130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mutation"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MOLECULE TYPE: DNA (genomic) FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3852..3891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5507..6023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             140..7319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OTHER INFORMATION:
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY: allele
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY: CDS
LOCATION: join(
LOCATION: 6040.
                                                                                                                                                                                                                                                                                                                                                                                                                            USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURE:
NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURE:
NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURE:
NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY:
```

replace(5834, "a")

LOCATION:

```
SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT · 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŏ
                                                                                                                                       ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4810 AATGTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG 4869
                                                                                                                                                                                         4750 GCCCTTGCTTTTTATTTTAACCAATAATCTTTTGTATATTTATACCTGTTAAAAATTCAGA 4809
                                                                                                                                                                                                                                                              61 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 120
                                                                                                                                                                                                                                                                                                                CACAAGTCATGGGTTTAATTTCTTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATG 180
                                                                                                                                                                                                                                                                                                                                                                                   GCCCTTGCTTTTTATTTTAACCAATAATCTTTTGTATATTTATACCTGTTAAAATTCAGA 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                     241 AATGTCAAGGCCGGGCACGGTGGCTCACCCTGTAATCCCAGCACTTTGGGAGGCCGAGG 300
                                                                                                                                                                         ;
0
                                                                                                        Length 10825;
/phenotype= "Hereditary Hemochromatosis
                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
APPLICANT: Thomas, Winston J.
APPLICANT: Tromas, Winston J.
APPLICANT: Drayna, Dennis T.
APPLICANT: Grirke, Andreas
APPLICANT: Guirke, Andreas
APPLICANT: Ruddy, David
APPLICANT: Wolff, Roger K.
TILLE OF INVENTION: Hereditary Hemochromatosis Gene
NUMBER OF SEQUENCES: 44
CORRESPONDERE ADDRESS:
ADDRESSE: Two Embarcadero Center, Eighth Floor
CITY: San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CITIC.
STATE: Calito.....
COUNTRY: USA
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC CD05/MS-D05
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/652,265
FILING DATE: 23-MAY-1996
FILING DATE: 23-MAY-1996
                                                                                                    100.0%; Score 301; DB 3;
100.0%; Pred. No. 6.6e-86;
tive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATTORNEY/AGENT INFORMATION:
NAME: Smith, William M.
REGISTRATION NUMBER: 30,223
REFERENCE/DOCKET NUMBER: 17957-000500
TELECOMMUNICATION INFORMATION:
TELEPAX: (415) 576-0200
TELEFAX: (415) 576-0300
INFORMATION FOR SEQ ID NO: 5:
                                    /label= 24d1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 5, Application US/08652265 Patent No. 6025130
                                                                                                      Query Match
Best Local Similarity 100.0
Matches 301; Conservative
) OTHER INFORMATION:
) OTHER INFORMATION:
) OTHER INFORMATION:
US-08-652-265-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4870 C 4870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 3
US-08-652-265-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          301 C 301
                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                4630
                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                qq
                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                             δ
                                                                                                                                                                                                                                             ŏ
```

```
4810 AATGTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG 4869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4630 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 4689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGCCTCTCCCAAATTC 60
      4690 CACAAGTCATGGGTTTAATTTCTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121 CACAAGTCATGGGTTTAATTTCTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181 GCCCTTGCTTTTTATTTAACCAATAATCTTTTGTATATTTTATACCTGTTAAAAATTCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       241 AATGTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 10825;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LOCATION: replace(3872, "g")
OTHER INFORMATION: /phenotype= "Hereditary Hemochromatosis OTHER INFORMATION: /label= 24d2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY: -
LOCATION: 5507..6023

LOCATION: 5507..6023

OTHER INFORMATION: /note= "start and stop positions for OTHER INFORMATION: genomic sequence surrounding variant or runchmation: for 24d1(G) allele (SEQ ID NO:20)"
                                                                                                                                                                                                                                                                                                                                                                                                                       LOCATION: 3852..3891
OOTHER INFORMATION: /note= "start and stop positions for OTHER INFORMATION: force sequence surrounding variant OTHER INFORMATION: for 24d2(G) allele (SEQ ID NO:42)"
                                                                                                                                                                                                                                                                                                                  LOCATION: 140..7319
OFHER INFORMATION: /note= "start and stop positions for OTHER INFORMATION: 24d2 allele cDNA (SEQ ID NO:11)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity 100.0%; Pred. No. 6.6e-86;
Matches 301; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-652-265-7 ; Sequence 7, Application US/08652265
LENGTH: 10825 base pairs
TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                              FEATURE:
NAME/KEY: - 3852..3891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY: allele
LOCATION: replace
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4870 C 4870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301 C 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-652-265-5
```

Gaps

ó

Indels

Length 10825;

```
4570 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGCCTCTCCCAAATTC 4629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4630 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACTTATAATTGAGATGTATGAGACAGC 4689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4750 GCCCTTGCTTTTTATTTAACCAATAATCTTTTGTATATTTATACCTGTTAAAAATTCAGA 4809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4810 AATGTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG 4869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121 CACAAGTCATGGGTTTAATTTCTTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181 GCCCTTGCTTTTTATTTAACCAATAATCTTTTGTATATTTATACCTGTTAAAAATTCAGA 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241 AATGTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG 300
                                                                                                                                                                                                                                                                                                                                                                                                    1 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGCCTCTCCAAATTC 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
APPLICANT: Thomas, Winston J.
APPLICANT: Thomas, Winston J.
APPLICANT: Drayna, Dennis T.
APPLICANT: Galike, Andreas
APPLICANT: Ruddy, David
APPLICANT: Ruddy, David
APPLICANT: Ruddy, David
APPLICANT: Ruddy, David
APPLICANT: Ruddy, Ester
APPLICANT: Ruddy, Senta
APPLICANT: Wolff, Roger K.
TITLE OF INVENTION: HERBDITARY HEMOCHROMATOSIS GENE PRODUCTS
NUMBER OF SEQUENCES: 76
CORRESPONDENCE ADDRESS:
/phenotype= "Hereditary Hemochromatosis
                                                                                                                                                  /phenotype- "Hereditary Hemochromatosis
                                                                                                                                                                                                                                                                                                  Query Match 100.0%; Score 301; DB 3; Best Local Similarity 100.0%; Pred. No. 6.6e-86; Matches 301; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBW PC Compatible
OPERATING SYSTEM: Windows 95
SOFTWARE: FASTSEQ for Windows Version 2.0b
CURRENT APPLICATION DATA:
FILING DATE: 04-APR-1997
CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      E: Pennie & Edmonds LLP
1155 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/652,265
               CTHER INFORMATION: / Jabel= 24d2
CTHER INFORMATION: / Jabel= 24d2
FEATURE: ALBER = allele
LOCATION: replace(5834, "a")
CTHER INFORMATION: / Phenotype=
CTHER INFORMATION: / CTHER INFORMATION: / Jabel= 24d1
US-08-652-265-7
                                                  /label= 24d2
                                                                                                                                                                                                  /label= 24d1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 1, Application US/08834497A Patent No. 6140305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CITY: NC YCL.
STATE: New YCL.
COUNTRY: USA
TO: 10036-2811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4870 C 4870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-08-834-497A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    301 C 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LOCATION: Join (361..436, 3762..4025, 4235..4510, 5606..5881, LOCATION: 6040..6153, 7107..7141)

OTHER INFORMATION: /Product= "Hereditary Hemochromatosis OTHER INFORMATION: and 24d2 mutations"

OTHER INFORMATION: Onche—"Hereditary Hemochromatosis OTHER INFORMATION: Gene containing a combination of both OTHER INFORMATION: 24d1 and 24d2 alleles"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       and 24d2 mutations"
/note= "Hereditary Hemochromatosis (HH)
gene containing a combination of both
24d1 and 24d2 alleles"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OTHER INFORMATION: /note= "start and stop positions for OTHER INFORMATION: CDNA containing a combination of both OTHER INFORMATION: 24d1 and 24d2 alleles
OTHER INFORMATION: (SEQ ID NO:12)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY:
LOCATION: 3852..3891
OTHER INFORMATION: /note= "start and stop positions for OTHER INFORMATION: genomic sequence surrounding variant OTHER INFORMATION: for 24d2(G) allele (SEQ ID NO:42)".
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: -
LOCATION: 5507..6023
OTHER INFORMATION: /note= "start and stop positions for OTHER INFORMATION: genomic sequence surrounding variant OTHER INFORMATION: for 24d1(A) allele (SEQ ID NO:21)"
                             APPLICANT: Thomas, Winston J.
APPLICANT: Thomas, Winston J.
APPLICANT: Drayna, Dennis T.
APPLICANT: Feder, John N.
APPLICANT: Gnirke, Andreas
APPLICANT: Ruddy, David
APPLICANT: Ruddy, David
APPLICANT: Tsuchihashi, Zenta
APPLICANT: Wolff, Roger K.
TITLE OF INVENTION: Hereditary Hemochromatosis Gene
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION DATA:
APPLICATION OWBER: US/08/652,265
FILING DATE: 23-MAY-1996
CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                          ADDRESSEE: Townsend and Townsend and Crew LLP STREET: Two Embarcadero Center, Eighth Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE/DOCKET NUMBER: 1795
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 576 0200
INFORMATION FOR SEQ ID NO: 7:
SEQUENCE CHARACTERISTICS:
LENGTH: 10825 base pairs
TYPE: nucleic acid.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY: allele
LOCATION: replace(3872, "g")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOPOLOGY: linear
MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                                                                       STREET: TWO DANCE.
CITY: San Francisco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              140..7319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LOCATION: 140..73:
OTHER INFORMATION:
OTHER INFORMATION:
               GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY: CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY:
```

```
RESULT 6
US-08-834-497A-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4870 C 4870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COUNTRY:
                                                                                    Matches 301;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        301 C 301
                                          Query Match
Best Local 9
                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                   Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note= "No. 6140305mal or wild-type (unaffected)
Hereditary Hemochromatosis (HH) gene
allele"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY: -
LOCATION: 5507..6023
OTHER INFORMATION: /note= "start and stop positions for OTHER INFORMATION: normal or wild-type (unaffected) genomic OTHER INFORMATION: sequence surrounding variant for 24d1(G) OTHER INFORMATION: allele (SEQ ID NO:20)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY: CDS
LOCATION: join(361..436, 3762..4025, 4235..4510, 5606..5881, LOCATION: join(361..436, 3762..4025, 4235..4510, 5606..5881, LOCATION: 6040..6153, 7107..7147)
COTHER INFORMATION: /product= "No. 6140305mal or wild-type (unaf OTHER INFORMATION: Hereditary Hemochromatosis (HH) gene OTHER INFORMATION: allele"
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OCHER INFORMATION: Anote-"start and stop positions for OCHER INFORMATION: Anote-"start and stop positions for OTHER INFORMATION: normal or wild-type (unaffected) genomic OTHER INFORMATION: sequence surrounding variant for 2442(C) OTHER INFORMATION: allele (SEQ ID NO:41)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LOCATION: 140..7319
OTHER INFORMATION: //ote= "start and stop positions for OTHER INFORMATION: normal or wild-type (unaffected) allele OTHER INFORMATION: cDNA (SEQ ID NO:9)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /phenotype= "normal or wild-type (unaffected)" /label= 2461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /phenotype= "normal or wild-type
(unaffected)"
/label= 24d2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LOCATION: replace(3878, "a")
OTHER INFORMATION: /phenotype= "normal or wild-type
OTHER INFORMATION: (unaffected)"
OTHER INFORMATION: /label= 2467
                                                                                                                                                                                                                            ATTORNEY AGENT INFORMATION:
NAME: POISSANT, Brian M.
REGISTRATION NUMBER: 28,462
REFERENCE/DOCKET NUMBER: 8907-0056-999
TELEPHONE: 650-493-4935
TELEPHONE: 650-493-4935
TELEPHONE: 650-493-556
TELEPRAX: 650-493-556
TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 1: SEQUENCE CHARACTERISTICS:
LENGTH: 10825 base pairs
TYPE: nucleic acid
              CLASSIFICATION: 514
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/632,673
FILING DATE: 16-APR-1996
CLASSIFICATION: 514
                                                                                                                                     PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/630,912
FILING DATE: 04-APR-1996
CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTHER INFORMATION: /phenotype=

CTHER INFORMATION: /phenotype=

CTHER INFORMATION: (unaffected)"

CTHER INFORMATION: /label= '1'.'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LOCATION: replace(3872, "c")
OTHER INFORMATION: /phenotype
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TOPOLOGY: linear MOLECULE TYPE: DNA (genomic)
23-MAY-1996
N: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY: allele
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME/KEY: allele
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY: -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY: -
```

```
ö
                                                                                                                                                                                                4810 AATGTCAAGGCCGGGCACGGTGGCTCACCCTGTAATCCCAGCACTTTGGGAGGCCGAGG 4869
                                                                                                           241 AATGTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG 300
                                                                                                                                                                         61 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 120
                                                                                                                                                                                                                                                             121 CACAAGTCATGGGTTTAATTTCTTTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATG 180
                                             Gaps
                                                                                    181 GCCCTTGCTTTTTATTTAACCAATAATCTTTTGTATATTTATACCTGTTAAAAATTCAGA
                                           ;
Length 10825;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HEREDITARY HEMOCHROMATOSIS GENE PRODUCTS
                                             0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTY: USA
ZIP: 10036-2811
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: Windows 95
SOFTWARE: FastEED for Windows Version 2.0b
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/834,497A
FILING DATE: 04-APR 1997
CLASSIFICATION DATA:
APPLICATION NUMBER: US 08/652,265
FILING DATE: 13-MAY-1996
CLASSIFICATION DATA:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/632,673
FILING DATE: 16-APR 1996
CLASSIFICATION DATA:
APPLICATION NUMBER: US 08/632,673
FILING DATE: 16-APR 1996
CLASSIFICATION STATES
100.0%; Score 301; DB 3;
illarity 100.0%; Pred. No. 6.6e-86;
Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3: Pennie & Edmonds LLP
1155 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/630,912
FILING DATE: 04-APR-1996
CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 3, Application US/08834497A Patent No. 6140305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Drayna, Dennis T.
APPLICANT: Feder, John N.
APPLICANT: Reder, John N.
APPLICANT: Ruddy, David
APPLICANT: Tsuchihashi, Zenta
APPLICANT: Wolff, Roger K.
TITLE OF INVENTION: HEREDITARY I
NUMBER OF SEQUENCES: 76
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
APPLICANT: Thomas, Winston J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STREET: 1155 Ave
CITY: New York
STATE: New York
                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE:
```

```
TOPOLOGY: linear MOLECULE TYPE: DNA (genomic)
                                                           4870 C 4870
                                                                                                                    US-08-834-497A-5
                           301 C 301
                                                          Db
                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121 CACAAGICAIGGGTITAAITICTTTTTCTCCATGCATAIGGCTCAAAGGGAAGIGICIAIG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181 GCCCTTGCTTTTTTTTTAACCAATAATCTTTTGTATATTTATACCTGTTAAAAATTCAGA 240
                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ouery Match

Ouery Match

100.0%; Score 301; DB 3; Length 10825;
Best Local Similarity 100.0%; Pred. No. 6.6e-86;
Matches 301; Conservative 0; Mismatches 0; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: allele
LOCATION: replace(5834, "a")
OTHER INFORMATION: /Phenotype- "Hereditary Hemochromatosis
OTHER INFORMATION: /label- 24d1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME/KEY: -
LOCATION: 3852..3891
OTHER INFORMATION: /note= "start and stop positions for OTHER INFORMATION: genomic sequence surrounding variant OTHER INFORMATION: for 24d2(c) allele (SEQ ID NO:41)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note= "start and stop positions for
genomic sequence surrounding variant
for 24d1(A) allele (SEQ ID NO:21)"
                                                                                                                                                                                                                                                                                                                                                                                                          LOCATION: 140..7319
OTHER INFORMATION: /note= "start and stop positions for OTHER INFORMATION: 24d1 allele cDNA (SEQ ID NO:10)"
ATTORNEY/AGENT INFORMATION:
NAME: Poissant, Brian M.
REGISTRATION NUMBER: 28,462
REFERENCE/DOCKET NUMBER: 8907-0056-999
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELEFAX: 650-493-4536
TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 10825 base pairs
TYPE: nucleic acid
STARNBEDIESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY: -
LOCATION: 5507..6033
OTHER INFORMATION: /no
OTHER INFORMATION: gen
OTHER INFORMATION: for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-834-497A-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
```

```
GENERAL INFORMATION:
GENERAL INFORMATION:
APPLICANT: Thomas, Winston J.
APPLICANT: Thomas, Winston J.
APPLICANT: Peder, John N.
APPLICANT: Ruddy, David
APPLICANT: Ruddy, David
APPLICANT: Ruddhahi, Zenta
APPLICANT: Wolff, Roger K.
TITLE OF INVENTION: HEREDITARY HEWOCHROMATOSIS GENE PRODUCTS
NUMBER OF SEQUENCES: 76
CORRESPONDENCE ADDRESS:
ADDRESSEE: Pennie & Edmonds LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY: CDS
LOCATION: join(361..436, 3762..4025, 4235..4510, 5606..5881,
COTHER INFORMATION: //product= "Hereditary Hemochromatosis
OTHER INFORMATION: //octe= "Hereditary Hemochromatosis (HH)
OTHER INFORMATION: gene 24d2 allele"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk
COMPUTER: 10036-2811

COMPUTER: The PC compatible
COMPUTER: FastSEQ for Windows 95
SOFTWARE: FastSEQ for Windows Version 2.0b
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/834,497A

TILING DATE: 04-APR-1997
CLASSIFICATION: 514
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/652,265
FILING DATE: 16-APR-1996
CLASSIFICATION DATA:
APPLICATION NUMBER: US 08/632,673
FILING DATE: 16-APR-1996
CLASSIFICATION DATA:
APPLICATION NUMBER: US 08/630,912
FILING DATE: 16-APR-1996
CLASSIFICATION DATA:
APPLICATION NUMBER: US 08/630,912
FILING DATE: 16-APR-1996
CLASSIFICATION DATA:
APPLICATION NUMBER: US 08/630,912
FILING DATE: 16-APR-1996
CLASSIFICATION NUMBER: US 08/630,912
FILING DATE: 16-APR-1996
CLASSIFICATION NUMBER: 28,462
REFERENCE/AGENT INFORMATION:
REGISTRATION NUMBER: 28,462
TELEPAN: 650-493-5556
TELEPAN: 650-493-5566
T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE: Pennie & Edmonds LLP STREET: 1155 Avenue of the Americas CITY: New York STATE: New York COUNTRY: USA ZIP: 10036-2811
Sequence 5, Application US/08834497A Patent No. 6140305
```

```
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4630 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAC 4689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4750 GCCCTTGCTTTTTATTTAACCAATAATCTTTTGTATATTTATACCTGTTAAAAATTCAGA 4809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4810 AATGTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG 4869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181 GCCCTTGCTTTTTATTTAACCAATAATCTTTTGTATATTTATACCTGTTAAAAATTCAGA 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  241 AATGTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGTCCCTCTCCAAATTC 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Gaps
                                                                                                             LOCATION: 3852..3891

LOCATION: 3852..3891

OTHER INFORMATION: /note= "start and stop positions for OTHER INFORMATION: genomic sequence surrounding variant OTHER INFORMATION: for 24d2(G) allele (SEQ ID NO:42)"

FEATURE: NAME/KEY: - LOCATION: 5507..6023

OTHER INFORMATION: /note= "start and stop positions for OTHER INFORMATION: genomic sequence surrounding variant OTHER INFORMATION: for 24d1(G) allele (SEQ ID NO:20)"

FEATURE: NAME/KEY: allele

LOCATION: replace(3872, "g")
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 100.0%; Score 301; DB 3; Length 10825; Best Local Similarity 100.0%; Pred. No. 6.6e-86; Matches 301; Conservative 0; Mismatches 0; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE OF INVENTION: HEREDITARY HEMOCHROMATOSIS GENE PRODUCTS NUMBER OF SEQUENCES: 76 CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                 LOCATION: replace(3872, "g")
OTHER INFORMATION: /phenotype= "Hereditary Hemochromatosis
OTHER INFORMATION: /label= 24d2
OTHER INFORMATION: /label= 24d2
LOCATION: 140..7319
OTHER INFORMATION: /note= "start and stop positions for OTHER INFORMATION: 24d2 allele cDNA (SEQ ID NO:11)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STREET: 1155 Avenue of the Americas CITY: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 7, Application US/08834497A Patent No. 6140305 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Thomas, Winston J.
APPLICANT: Drayna, Dennis T.
APPLICANT: Feder, John N.
APPLICANT: Gnirke, Andreas
APPLICANT: Ruddy, David
APPLICANT: Ruddy, David
APPLICANT: Wolff, Roger K.
                                                                                                   3852..3891
                                                                         'EATURE:
NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4870 C 4870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-834-497A-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-08-834-497A-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301 C 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  å
```

```
NAME/KEY: CDS
LOCATION: join(361..436, 3762..4025, 4235..4510, 5606..5881,
LOCATION: 6040..6153, 7107..7147)
OTHER INFORMATION: /product= "Hereditary Hemochromatosis
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LOCATION: replace(3872, "g")
OTHER INFORMATION: /phenotype= "Hereditary Hemochromatosis
OTHER INFORMATION: /label= 24d2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and 24d2 mutations"
/note= "Hereditary Hemochromatosis (HH)
gene containing a combination of both
24d1 and 24d2 alleles"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note= "start and stop positions for coDNA containing a combination of both 24d1 and 24d2 alleles (SEQ ID NO:12)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note= "start and stop positions for genomic sequence surrounding variant for 24d1(A) allele (SEQ ID NO:21)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note= "start and stop positions for
genomic sequence surrounding variant
for 24d2(G) allele (SEQ ID NO:42)"
ZIP: 10036-2811
COMPUTER READABLE FORM:
MEDIUM TYPE: Flappy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: Windows 95
SOFTWARE: Fast-SEQ for Windows Version 2.0b
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTORNEY/AGENT INFORMATION:
NAME: Poissant, Brian M.
REGISTRATION NUMBER: 28,462
REFERENCE/DOCKET NUMBER: 8907-0056-999
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650-493-4935
                                                                                                                                                                                    CURKENT APPLICATION DATA

OFFICIATION NUMBER: US/08/834,497A

FILING DATE: 04-APR-1997

CLASSITCATION: 514

PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/652,265

FILING DATE: 33-MAY-1996

CLASSIFICATION: 514

PRIOR APPLICATION DATA:
APPLICATION UNMBER: US 08/632,673

FILING DATE: 16-APR-1996

CLASSIFICATION: 514

PRIOR APPLICATION: 514

PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/630,912

FILING DATE: 04-APR-1996

CLASSIFICATION: 514

PRIOR APPLICATION: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY: linear MOLECULE TYPE: DNA (genomic) FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELEFAX: 650-493-5556
TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO: 7:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH: 10825 base pairs
TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY: 5-0...6023
LOCATION: 5507..6023
OTHER INFORMATION: 7no
OTHER INFORMATION: gen
OTHER INFORMATION: for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LOCATION: 140..7319
CTHER INFORMATION: CD
OTHER INFORMATION: CD
OTHER INFORMATION: CS
OTHER INFORMATION: (S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3852..3891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LOCATION: 3852..3891
OTHER INFORMATION: /
OTHER INFORMATION: G
OTHER INFORMATION: f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OTHER INFORMATION:
OTHER INFORMATION:
OTHER INFORMATION:
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY: allele
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURE:
NAME/KEY:
```

```
/note= "No. 6228594mal or wild-type (unaffected)
Hereditary Hemochromatosis (HH) gene
allele"
                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY: CDS
LOCATION: join(361..436, 3762..4025, 4235..4510, 5606..5881,
LOCATION: join(361..436, 3762..4025, 4235..4510, 5606..5881,
LOCATION: G040..6153, 7107..7147)
OTHER INFORMATION: /product- "Hereditary Hemochromatosis
OTHER INFORMATION: /note- "No. 6228594mal or wild-type (unaf
OTHER INFORMATION: Hereditary Hemochromatosis (HH) gene
OTHER INFORMATION: allele"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY: -
LOCATION: 3852..3891
OCHER INFORMATION: /note= "start and stop positions for OTHER INFORMATION: normal or wild-type (unaffected) genomic OTHER INFORMATION: sequence surrounding variant for 24d2(C) OTHER INFORMATION: allele (SEQ ID NO:41)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note= "start and stop positions for
normal or wild-type (unaffected) genomic
sequence surrounding variant for 24d1(G)
allele (SEQ ID NO:20)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note= "start and stop positions for normal or wild-type (unaffected) allele cDNA (SEQ ID NO:9)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LOCATION: replace(3872, "c")
OTHER INFORMATION: /phenotype= "normal or wild-type
OTHER INFORMATION: (unaffected)"
OTHER INFORMATION: /label= 24d2
FEBATURE:
NAME/KEY: allele
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /phenotype= "normal or wild-type
(unaffected)"
/label= 24d7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LOCATION: replace(5834, "g")
OTHER INFORMATION: 'Chhenotype= "normal or wild-type
OTHER INFORMATION: (unaffected)"
OTHER INFORMATION: /label= 2441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%; Score 301; DB 4;
100.0%; Pred. No. 6.6e-86;
11ve 0; Mismatches 0;
PILING DATE: 16-Apr-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/630,912
FILING DATE: 04-Apr-1996
ATTORNEY/AGENT INFORMATION:
NAME: Poissant, Brian M.
REGISTRATION NUMBER: 28,462
REFERENCE/DOCKET NUMBER: 8907-0088-999
TELECOMMUNICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LOCATION: replace(3878, "a")
OTHER INFORMATION: /phenotype
                                                                                                                                                                                                  TELEPRAN: 212-790-9090
TELEFAX: 212-869-9741
TELEX: 66141
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 10825 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                        TOPOLOGY: linear MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 100.
Best Local Similarity 100.
Matches 301; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME/KEY: -
LOCATION: 5507..6023
OTHER INFORMATION: /n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME/KEY: -
LOCATION: 140..7319
OTHER INFORMATION: /
OTHER INFORMATION: n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OTHER INFORMATION: OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OTHER INFORMATION: OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: allele
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY: allele
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-503-444A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURE
                                                                                                                                                                                                                                                      .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4630 TGGGAAGGGACTTTCTCAATCCTAAGAGTCTCTACTTATAATTGAGATGTATGAGACAGC 4689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4690 CACAAGTCATGGGTTTAATTTCTTTTCTCCATGCATATGGCTCAAGGGAAGTGTCTATG 4749
                                                                                                                                                                                                                                                                                                                 121 CACAAGTCATGGGTTTAATTTCTTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATG 180
                                                                                                                                                                                                                                                                                                                                                                                 61 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181 GCCCTTGCTTTTTATTTAACCAATAATCTTTTGTATTTTATACCTGTTAAAAATTCAGA 240
                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                       1 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGCCTCTCCAAATTC 60
                                                                                                                                                                                                                                                    .;
0
                                                                                                                                                                                                       Length 10825;
                                                             /phenotype= "Hereditary Hemochromatosis
                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 1, Application US/09503444A

Patent No. 6228594

GENERAL INFORMATION

APPLICANT: Thomas, Winston J.

APPLICANT: Feder, John N.

APPLICANT: Ruddy, David

APPLICANT: Tauchinashi, Zenta

APPLICANT: Tauchinashi, Zenta

APPLICANT: Tauchinashi, Reditary Hemochromatosis Gene

NUMBER OF SEQUENCES: 44

CORRESPONDENCE ADDRESS:

ADDRESSEE: Pennie & Edmonds LLP

STREET: 1155 Avenue of the Americas

CITY: New York

STATE: New York

COUNTRY: USA
                                                                                                                                                                                                  Query Match
100.0%; Score 301; DB 3;
Best Local Similarity 100.0%; Pred. No. 6.6e-86;
Matches 301; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: US/09/503,444A FILING DATE: 14-Feb-2000 CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READBLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: Windows 95
SOFTWARE: WordPerfect Version 8
CURRENT APPLICATION DATA:
                NAME/KEY: allele
CCATION: replace(5834, "a")
CTHER INFORMATION: /phenotype=
OTHER INFORMATION: /label= 24d1
US-08-834-497A-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/652,265
FILING DATE: 23-May-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/632,673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4870 C 4870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-503-444A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                301 C 301
                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
```

ô

Gaps

ö

Indels

Length 10825;

```
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                4689
                                                                                                                                                                                                                                                                                                                                           4869
                 4570 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGCTCTCCAAATTC 4629
                                                                                                                                                                       121 CACAAGTCATGGGTTTAATTTCTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATG 180
                                                                                                                                                                                                                          181 GCCCTTGCTTTTTATTTAACCAATAATCTTTTGTATTTTATACCTGTTAAAATTCAGA 240
                                                                                              4630 IGGGAAGGGACTTTCTCACATCCTAGAGTCTCTACTTATAATTGAGATGTATGAGACACCC
                                                                                                                                                                                                                                              4810 AATGTCAAGGCCGGGCACGGTCACCCTGTAATCCCAGCACTTTGGGAGGCCGAGG
                                                                                                                                                                                                                                                                                                     241 AATGTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG
1 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGCCTCTCCAAATTC
                                                                        61 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Drayna, Dennis T.
APPLICANT: Feder, John N.
APPLICANT: Golrke, Andreas
APPLICANT: Gulke, David
APPLICANT: Ruddy, David
APPLICANT: Tsuchihashi, Zenta
APPLICANT: Wolff, Roger K.
TITLE OF INVENTION: Hereditary Hemochromatosis Gene
WUMBER OF SEQUENCES: 44
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RECISTRATION NUMBER: 28,462
REFERENCE/DOCKET NUMBER: 8907-0088-999
TELECOMMUNICATION INFORMATION:
TELEPHONE: 212-790-9090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3: Pennie & Edmonds LLP
1155 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: US/09/503,444A FILLING DATE: 14-Feb-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/652,265
FILING DATE: 23-May-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/632,673
FILING DATE: 16-APP-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/630,912
FILING DATE: 04-APP-1996
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: Windows 95
SOFTWARE: WordPerfect Version 8
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 3, Application US/09503444A Patent No. 6228594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Thomas, Winston J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME: Poissant, Brian M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEX: 66141
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         212-869-9741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                  4870 C 4870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-503-444A-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                              301 C 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STATE:
                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                   q
                                                                                                                                                                                                                                                                                                                                                                              à
                                   셤
                                                                                                          g
                                                                                                                                                 ŏ
                                                                                                                                                                                   g
                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                   οy
õ
```

```
4810 AATGTCAAGGCCGGGCACGGGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGGGG 4869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                            LOCATION: join(361..436, 3762..4025, 4235..4510, 5606..5881, LOCATION: 6440..6153, 7107..7147)

OTHER INPORMATION: /product= "Hereditary Hemochromatosis OTHER INFORMATION: OTHER INFORMATION: /note= "Hereditary Hemochromatosis (HH) OTHER INFORMATION: gene 24d1 allele"

NAME/KEY: LOCATION: 140..7319

OTHER INFORMATION: /note= "start and stop positions for OTHER INFORMATION: 24d1 allele cDNA (SEQ ID NO:10)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      241 AATGTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGCCTCTCCAAATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCCTTGCTTTTTATTTAACCAATAATCTTTTGTATATTTATACCTGTTAAAAATTCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 10825;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LOCATION: replace(5834, "a")
TOTHER INFORMATION: /phenotype= "Hereditary Hemochromatosis OTHER INFORMATION: /label= 24dl
                                                                                                                                                                                                                                                                                                                                                                                                                                    JAINCE. -
LOCATION: 3852..3891
LOCATION: 3852..3891
COTHER INFORMATION: /note= "start and stop positions for OTHER INFORMATION: genomic sequence surrounding variant office allele (SEQ ID NO:41)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note= "start and stop positions for
genomic sequence surrounding variant
for 24d1(A) allele (SEQ ID NO:21)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%; Score 301; DB 4;
100.0%; Pred. No. 6.6e-86;
tive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; Sequence 5, Application US/09503444A
                                                                                                MOLECULE TYPE: DNA (genomic)
                   LENGTH: 10825 base pairs TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 100.
Best Local Similarity 100.
Matches 301; Conservative
SEQUENCE CHARACTERISTICS:
                                                             STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5507:.6023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY: allele
                                                                                     linear
                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURE:
NAME/KEY:
                                                                                   TOPOLOGY:
                                                                                                                                                 NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 11
US-09-503-444A-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-503-444A-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C 4870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          301 C 301
                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181
```

```
Query Match
Best Local Similarity 100.
Matches 301; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CLASSIFICATION:
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                USA
                                                                                                                                                                                                                                                                                                                                                                  US-09-503-444A-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4870 C 4870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          301 C 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME/KEY: CDS
LOCATION: join(361.436, 3762.4025, 4235..4510, 5606..5881, LOCATION: 6040..6153, 7107..7147)
LOCATION: 6040..6153, 7107..7147)
COTHER INFORMATION: /Product= "Hereditary Hemochromatosis OTHER INFORMATION: mutation: mutation: mutation: mutation: // OTHER INFORMATION: gene 24d2 allele"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY: -
LOCATION: 3852..3891
OTHER INFORMATION: /note= "start and stop positions for OTHER INFORMATION: genomic sequence surrounding variant OTHER INFORMATION: for 24d2(G) allele (SEQ ID NO:42)" FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LOCATION: 140..7319
OTHER INFORMATION: /note- "start and stop positions for OTHER INFORMATION: 24d2 allele cDNA (SEQ ID NO:11)"
                                                                                                         APPLICANT: Feder, John N.
APPLICANT: Gnirke, Andreas
APPLICANT: Ruddy, David
APPLICANT: Tsuchihash, Zenta
APPLICANT: Wolff, Roger K.
TITLE OF INVENTION: Hereditary Hemochromatosis Gene
WUMBER OF SEQUENCES: 44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PULDASIFLECATION DATA:
APPLICATION DATA:
APPLICATION NUMBER: 08/652,265
FILING DATE: 3-May-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/632,673
FILING DATE: 16-Apr-1996
ATONER/APPLICATION DATA:
APPLICATION NUMBER: 08/630,912
FILING DATE: 04-Apr-1996
ATONERY/APRIT INFORMATION:
REGISTRATION NUMBER: 28,462
REFERENCE/DOCKET NUMBER: 28,462
REFERENCE/DOCKET NUMBER: 8907-0088-999
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION 12-790-9090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ZIP: 10036
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: Windows 95
SOFTWARE: WordPerfect Version 8
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/503,444A
FILING DATE: 14-Feb-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE: Pennie & Edmonds LLP
STREET: 1155 Avenue of the Americas
                                 Thomas, Winston J. Drayna, Dennis T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY: linear MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELEFAX: 212-869-9741
TELEX: 66141
INFORMATION FOR SEQ ID NO: 5:
SEQUENCE CHARACTERISTICS:
LENGTH: 10825 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  New York
:: New York
PRY: USA
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME/KEY: -
                         APPLICANT:

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CITY: STATE:
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                           4750 GCCCTTGCTTTTTATTTAACCAATAATCTTTTGTATATTTATACCTGTTAAAATTCAGA 4809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4810 AATGTCAAGGCCGGGCACGGTGGCTCACCCTGTAATCCCAGCACTTTGGGAGGCCGAGG 4869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121 CACAAGTCATGGGTTTAATTTCTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 120
                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                  1 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTCCCTCTCCAAATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181 GCCCTTGCTTTTTATTTAACCAATAATCTTTGTATATTTATACCTGTTAAAAATTCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        241 AATGTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG
                                                                                                                                                                                                                                                                                                                                                                    .
.
LOCATION: 5507..6023
OTHER INFORMATION: // note= "start and stop positions for OTHER INFORMATION: // genomic sequence surrounding variant OTHER INFORMATION: for 24d1(G) allele (SEQ ID NO:20)"
NAME/KET: allele LOCATION: replace(3872, "g")
OTHER INFORMATION: // phenotype= "Hereditary Hemochromatosis OTHER INFORMATION: /label= 24d2
                                                                                                                                                                                                                                                                                                                  Length 10825;
                                                                                                                                                                                                                                                                                                                                                                    0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-503-444A-7

Sequence 7, Application US/09503444A

Patent No. 6228594

GENERAL INFORMATION:

APPLICANT: Thomas, Winston J.

APPLICANT: Feder, John N.

APPLICANT: Gnirke, Andreas

APPLICANT: Ruddy, David

APPLICANT: Ruddy, David

APPLICANT: Wolff, Roger K.

TILLE OF INVENTION: Hereditary Hemochromatosis Gene

NUMBER OF SEQUENCES: 44

CORRESPONDENCE ADDRESS:

ADDRESSEE: Pennie & Edmonde TT-

CITY.
                                                                                                                                                                                                                                                                                                                  100.0%; Score 301; DB 4;
100.0%; Pred. No. 6.6e-86;
ive 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ZUP: 10036

COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: Windows 95
SOFTWARE: WordPerfect Version 8
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/503,444A
FILING DATE: 14-Feb-2000
```

4570 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGTCCTCTCCAAATTC 4629

TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC

61

Oy Oy Oy Oy Oy

4690 CACAAGTCATGGGTTTAATTTCTTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATG 4749

121 CACAAGTCATGGGTTTAATTTCTTTTTTCTCCATATGGCTCAAAGGGAAGTGTCTATG 180

181 GCCCTTGCTTTTTATTTAACCAATAATCTTTTGTATTTTATATACCTGTTAAAAATTCAGA

4810 AATGICAAGGCCGGGCACGGTGGTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG 4869

24.1 AATGICAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG

```
NAME/KEY: CDS
LOCATION: join(361..436, 3762..4025, 4235..4510, 5606..5881,
LOCATION: 6040..6153, 7107..7147)
COTHER INFORMATION: /Product="Hereditary Hemochromatosis OTHER INFORMATION: and 2442 mutations"
OTHER INFORMATION: /note="Hereditary Hemochromatosis (HH) OTHER INFORMATION: gene containing a combination of both OTHER INFORMATION: 2441 and 2442 alleles"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LOCATION: replace(5834, "a")
UPIER INFORMATION: /phenotype= "Hereditary Hemochromatosis OTHER INFORMATION: /label= 2441
OTHER INFORMATION: /label= 2441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LOCATION: replace(3872, "g")
OTHER INFORMATION: /phenotype= "Hereditary Hemochromatosis
OTHER INFORMATION: /label= 24d2
OTHER INFORMATION: /label= 24d2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LOCATION: 140..7319
TOTER INFORMATION: // note= "start and stop positions for OTHER INFORMATION: cDNA containing a combination of both OTHER INFORMATION: 24d1 and 24d2 alleles
OTHER INFORMATION: (SEQ ID NO:12)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LOCATION: 3852..3891
OTHER INFORMATION: /note= "start and stop positions for OTHER INFORMATION: genomic sequence surrounding variant OTHER INFORMATION: for 24d2(G) allele (SEQ ID NO:42)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LOCATION: 5507..6023
OTHER INFORMATION: /note= "start and stop positions for OTHER INFORMATION: genomic sequence surrounding variant OTHER INFORMATION: for 24d1(A) allele (SEQ ID NO:21)"
                                                                                                                                                                                                                                                                                                                         8907-0088-999
                                                                              APPLICATION NUMBER: 08/632,673
FILING DATE: 16-Apy-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/630,912
FILING DATE: 04-Apy-1996
ATYONEY/ABONT INFORMATION:
NAME: POISSAIL, Brian M.
REGISTRATION NUMBER: 28,462
APPLICATION NUMBER: 08/652,265
FILING DATE: 23-May-1996
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                   REFERENCE/DOCKET NUMBER: 89
TELECOMONIOLEATION INFORMATION:
TELEPHONE: 212-790-9090
TELEFRAX: 212-869-9741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TOPOLOGY: linear
MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                     TELEX: 66141
INFORMATION FOR SEQ ID NO: 7:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH: 10825 base pairs TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY: -
100a TON: 3852..3891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY: allele
LOCATION: replace
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME/KEY: allele
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME/KEY: -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-503-444A-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURE:
```

GENERAL INFORMATION:
APPLICANT: Schemberg, Barry E.
APPLICANT: Sawda-Hirai, Ritsuko
APPLICANT: Sawda-Hirai, Ritsuko
APPLICANT: Barton, James C.
TITLE OF INVENTION: MUTATIONS ASSOCIATED WITH IRON DISORDERS
FILE REPERENCE: 10653/002001
CURRENT FILING DATE: 1999-03-26
CURRENT FILING DATE: 1999-03-26
NUMBER OF SEQ ID NOS: 30
SOFTWARE: FastSEQ for Windows Version 4.0

LENGTH: 12146

SEQ ID NO 27

Sequence 27, Application US/09277457 Patent No. 6355425

US-09-277-457-27

4870 C 4870

301 C 301

δλ

qq

```
ö
                                                                                                                  61 TGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 120
                                                                                          Gaps
                                                                                                                                                                                                 5520 tgggaagggactttctcaatcctagagtctctaccttataattgagatgtatgagacagc
                                                                                                                                                                                                                             121 CACAAGICATGGGITTAATITCTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATG
                                                                                                                                                                                                                                         181 GCCCTTGCTTTTTATTTAACCAATAATCTTTTGTATTTTATACCTGTTAAAAATTCAGA
                                                                                                                                                                                                                                                                                                                                     241 AATGTCAAGGCCGGGCACGGTGGCTCACCCTGTAATCCCAGCACTTTGGGAGGCCGAGG
                                                                                          ö
                                                                Length 12146;
                                                                                          Indels
                                                                                          ;
                                                              Query Match 100.0%; Score 301; DB 4; Best Local Similarity 100.0%; Pred. No. 6.9e-86; Matches 301; Conservative 0; Mismatches 0;
; TYPE: DNA
; ORGANISM: Homo Sapiens
US-09-277-457-27
                                                                                                                                                                                                                                                                                                                                                                                            301 C 301
                                                                                                                                                                                                                                                                                                                                                                                                                    ن .
                                                                                                                                                                                                                                                                                                                                                                                                                     5760
                                                                                                                                               g
                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                      q
                                                                                                                                                                                                                                                                                                          qq
                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                            δλ
                                                                                                                                                                                                                                                                                                                                                                                                                    qq
                                                                                                                      ò
                                                                                                                                                                          ò
                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                  δy
                                                                                                                                                                                                                                                                                                                                      ŏ
```

; 0

Gaps

. 0

Indels

Length 10825;

1 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGCCTCTCCCAAATTC 60

100.0%; Score 301; DB 4; 100.0%; Pred. No. 6.6e-86; ive 0; Mismatches 0;

Matches 301; Conservative

δ

Similarity

Query Match Best Local (

```
Db 197113 AATGTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG 197172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Db 196873 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGCCTCTCCAAATTC 196932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Db 196933 TGGGAAGGGACTTTCTCAATCCTAGAGTCTTATCATAATTGAGATGTATGAGACAGC 196992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61 TGGGAAGGGACTITCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTATGAGACAGC 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121 CACAAGTCATGGGTTTAATTTCTTTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 GGCACGGAATCCCTGGTTGGAGTTCAGAGGTGGCTGAGGCTGTGTGCTCTCCAAATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 246240;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE OF INVENTION: Megabase Transcript Map: No. 5872237el TITLE OF INVENTION: Sequences and Antibodies Thereto CORRESPONDENCE: 31
CORRESPONDENCE ADDRESS: ADDRESS: ADDRESSE: TOWNSEND and TOWNSEND and CREW LLP STREET: Two Embarcadero Center, 8th Floor CITY: San Francisco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPTRY: USA3

CIP: 94111-3834

COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: Eloppy disk
COMPTRY: LIBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/724,394A
FILING DATE: 01-OCT-1996
CLASSIFICATION: 536
ATORNEY/AGENT INFORMATION:
NAME: Fitts, Renee A.
REGISTRATION NUMBER: 35,136
REGISTRATION NUMBER: 35,136
TELECOMMULICATION INFORMATION:
TELECOMMULICATION INFORMATION:
TELECOMMULICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
100.0%; Score 301; DB 2;
Best Local Similarity 100.0%; Pred. No. 2.5e-85;
Matches 301; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY: misc_feature
LOCATION: 1..246240
OTHER INFORMATION: /note= "HLA-H.CONTIG"
                                                                                                                                                                                                                                                                                                         ; Sequence 21, Application US/08724394A
; Patent No. 5872237
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEFAX: 415-5/0 CCC.
INFORMATION FOR SEQ ID NO: 21:
SEQUENCE CHARACTERISTICS:
LENGTH: 246240 base pairs
TVPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Kronmal, Gregory S.
APPLICANT: Lauer, Peter M.
APPLICANT: Ruddy, David A.
APPLICANT: Thomas, Winston
APPLICANT: Tsuchihashi, Zenta
APPLICANT: Wolff, Roger K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SS: not relevant not relevant
                                                                                                                                                                                                                                                                                                                                                                                                       John N.
                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Feder,
APPLICANT: Kronmal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MOLECULE TYPE:
                                                                                                                                                  Db 197173 C 197173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-08-724-394A-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNTRY:
                                                                                           301 C 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STATE:
                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Db 196873 GGCACGGAATCCCTGGTTGGAGTTTCAGAGTGGCTGAGGCTGTGTGCCTCTCCCAAATTC 196932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Db 196993 CACAAGTCATGGGTTTAATTTCTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATG 197052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DD 197053 GCCCTTGCTTTTATTTAACCAATAATCTTTTGTATATTTATACCGTTTAAAAATTCAGA 197112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181 GCCCTTGCTTTTTTATTTAACCAATAATCTTTTGTATATTTTATACCTGTTAAAATTCAGA 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121 CACAAGTCATGGGTTTAATTTCTTTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        241 AATGTCAAGGCCGGGCACGGTGGCTCACCCCTGTAATCCCAGCACTTTGGGAGGCCGAGG 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 GGCACGGAATCCCTGGTTGGAGTTTCAGAGGTGGCTGAGGCTGTGTGCCTCTCCAAATTC 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 246240;
                                                                                                                                                                                                                                                              APPLICANT: Thomas, Winston
APPLICANT: Tsuchihashi, Zenta
APPLICANT: Tsuchihashi, Zenta
APPLICANT: Tsuchihashi, Zenta
APPLICANT: Wolff, Roger K.
TITLE OF INVENTION: Megabase Transcript Map: No. 5872237el
TITLE OF INVENTION: Sequences and Antibodies Thereto
NUMBER OF SEQUENCES: 31
CORRESPONDENCE ADDRESS:
ADDRESSEE: TOWNSEND and TOWNSEND and CREW LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY: USA

ZIF: 94111-3834

COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/724,394A
FILING DATE: 01-OCT-1996
ATTORNEY/AGENT INFORMATION:
NAME: FILES, Renee A.
REGISTRATION NUMBER: 35,136
ATCORNUTCATION NUMBER: 35,136
FELEFRANICATION INFORMATION:
TELECOMMUTCATION INFORMATION:
TELECOMMUTCATION INFORMATION:
TELECOMMUTCATION 100: 20:
TELEFRAN: 415-576-0200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
100.0%; Score 301; DB 2;
Best Local Similarity 100.0%; Pred. No. 2.5e-85;
Matches 301; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Two Embarcadero Center, 8th Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; NAME/KEY: misc_feature
; LCGATION: 1..246240
; OTHER INFORMATION: /note= "HLA-H.CONTIG"
US-08-724-394A-20
                                             Sequence 20, Application US/08724394A Patent No. 5872237 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRANDEDNESS: not relevant
TOPOLOGY: not relevant
                                                                                                                                         APPLICANT: Feder, John N.
APPLICANT: Kronmal, Gregory
APPLICANT: Lauer, Peter M.
APPLICANT: Ruddy, David A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LENGTH: 246240 base pairs
TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    San Francisco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MOLECULE TYPE:
                                                                                                                                                                                                                                    APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
```

ò

Frame

000000000000000

0000

Seguences

οŧ

- Fast Pairwise Comparison

FastDB

IntelliGenetics

v <u>o</u> v V 0 V 0

ρλ

made

us-09-497-957-1.res

Results file Release 5.4

Query sequence being compared: Number of sequences searched: Number of scores above cutoff:

Results of

File

50-

X D X B B K

10-

0 4

```
| 100 | 100 | 140 | 140 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCTGTTGCTTTTCACCAGGAAGTTTACTGGGCATCTCCTGAGCCTAGGCAATACTGTAGGGTGACTTCTG
CCTGTTGCTTTTCACCAGGAAGTTTACTGGGCATCTCCTGAGCCTAGGCCAATAGCTGTAGGGTGACTTCTG
220 250 250 250 260 270 280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4.02
2
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                         -0.00
-0.00
-0.00
-0.00
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
-0.26
    4.002
0.02
0.02
0.02
                                                                                                                                                                                                                                                                                                                                                                   Sig.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            = 10825 Significance = 10823 Mismatches =
                                                                                                                                                                                                                                                                                                                                                                                                                                                              786
785
786
786
39
39
39
31
30
20
20
20
                                                                                                                                                                                                                                                                                                                            Opt.
Score
         10825
10825
10825
10825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              490
10825 10825 1
10825 10825 1
10825 10825 1
10825 10825 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                         677
676
676
676
675
39
39
39
39
39
30
20
20
                                                                                                                                                                                                                                                                                                                            Init.
Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   270
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (1-10825)
Sequence 7, Application US/09497957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative Substitutions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           190
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Application US
11, Application
12, Application
12, Application
13, Application
14, Application
18, Application
19, Application
19, Application
19, Application
19, Application
19, Application
11, Application
11, Application
11, Application
12, Application
13, Application
14, Application
15, Application
16, Application
17, Application
18, Application
19, Application
19, Application
19, Application
10, Application
10, Application
11, Application
12, Application
13, Application
13, Application
14, Application
15, Application
16, Application
17, Application
18, Application
19, Application
10, Application
10, Application
10, Application
11, Application
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   260
              us
us
us
us
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      330
         Application (Application CApplication CAPPLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Optimized Score
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12,
221,
220,
42,
41,
43,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       44,
31,
24,
18,
         Sequence 7, 1
Sequence 5, 1
Sequence 3, 1
Sequence 1, 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence Seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
Sequence
Sequence
                                                                                                                                                                                                                                           other best scores is:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 9,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                            Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10825
99%
0
                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-497-957-9 Sec

US-09-497-957-11 Sec

US-09-497-957-12 Sec

US-09-497-957-21 Sec

US-09-497-957-22 Sec

US-09-497-957-25 Sec

US-09-497-957-41 Sec

US-09-497-957-43 Sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   450
         1. US-09-497-957-7 S
2. US-09-497-957-5 S
3. US-09-497-957-3 S
4. US-09-497-957-1 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-497-957-1
US-09-497-957-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          H H H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Initial Score
Residue Identity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           300
                                                                                                                                                                                                                                                                                                                                                                            Name
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   440
                                                                                                                                                                                                                                           jo
                                                                                                                                                                                                                                           The list
                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sig. Frame
                                                                                                                                                                                                                                                                                           Wed 19 Jun 102 8:27:38-PDT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         s of the initial comparison of US-09-497-957-1 (1-10825) with: US09497957.seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  10825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Init. Opt.
Score Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Standard Deviation 2519.87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9622|
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Total Elapsed 00:00:02.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           were found:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
8419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length
                                                                                                                                                                                                                                                                                                                                                                                                                       compared:US-09-497-957-1 (1-10825)
searched: 70
re cutoff: 70
                                                                                                                                                                                                                                                                                               uo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               penalty
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7217
3
                                                                                                                                                                                                                                                                                               jdelaval
```

K-tuple Joining pena Window size

Unitary 1 1.00 0.33

Similarity matrix
Mismatch penalty
Gap penalty
Gap size penalty
Cutoff score
Randomization group

0

PARAMETERS

6014

4811 2

3608

2406 1

1203

--0

SHCDHZOHS

SCORE

STATISTICS

SEARCH

Median 19

Mean 686

Scores

CPU 00:00:02.02

dnery seguence

the

sednences to

100% similar

Description

Sequence Name

below are sorted by initial score. se is calculated based on initial s

The scores be Significance

51359 70 70

sequences searched: scores above cutoff:

residues

Number

Times:

of of

Number

 $\sim$ 

		1455 GCCCCC	720 ACATTTAC) TGCTT	790 1590 1590 CGGGTTA		1730 17 CTGTCAAG CTGTTCAAG 11111111111111111111111111111111111	1810 GATGGAATP 	1080 1080 1080 1080 1080 1080 1080 1080	150 1950 1950 1950 1950 1950 1950 1950 1	2020 100 GTGTGTGT 11111 GTGTGTGT 100 2020	2090 GCAGTA               2090	2170 AAACTTGCC. AATAA
CTGCGTGAGTCCGAGGGCGGAACTAGGGGCGGGGGGGGGG	510 570 TTGCGCTTGGGAGTTTGCTAACTTTGGAGGACCTGCTCAACCCTATCCGCAAGCCCTCTCCCTACTTTCTG	\$80	650 660 670 680 590 700 710  TCCCCGGCTGTCCCGGGGTGACTTTTGGAACCGCCCACTCCCTTCCCCCAACTAGAATGCTTT	TAO 750 770 780 780 780 780 780 770 780 780 78	# 800 # 10 # 820 # 840 # 850 # 860 #	870   880   890   900   910   920   930	940 GGCGCGAAAGAGTGGCGTTGGGAATCTTCACCATTCCACCCAC	1010   1020   1030   1040   1050   1060   1070   1080   GGTCTCTAGGGAGGCTCCTGGGGCCTTTTCCCCCACTTTGGCAATTGTTTTTTTT	1090 1100 1150 1150 1150 1150 1150 1150	1160 1270 1220 GATTIGCAATGTGCTGTAATTAAGAGGCCTCTCTACAAAGTACTGATAATGAACATGTAAGCAATGCACT	1230 1240 1250 1260 1270 1280 1290 CACTTCTAGTTTTCACTAGGCATAGGGAGGTAGGGCTAATAATA	1300 1310 1320 1330 1340 1350 1360 CGTTTATATATATATATATATATATATATAAGGTTACAAAGAACATAAATAA

```
2010
                     1720
                                       2000
                     1710
                                       1990
                     1700
                                       1980
                     1690
                                       1970
                     1680
                                       1960
                     1670
```

AACTTTGCCACATGTCACCTAGTAGACAAACTCCTGGTTAAGAAGCTCGGGTTGAAAAAAATAAACAAGTA 2170 2170 2180 2190 2200 2210	2240 2250 2260 2270 2280 2390 TGCTGGGGAGTAGGCCAAATGGGCTCAGAAGGAGCCACAAACAA
STTGAAAAAA 2220	2290 ACAAACAAGGT               ACAAACAAGGT 2290
AGAAGCTCGGC 2210	2280 AAGAGGAGCC 1111111 AAGAGGAGCC 2280
CTCCTGGTTA 2200	2270 ATGGGCTCAG 
AGTAGACAAA 2190	2260 GAAGTAGGTA           GAAGTAGGTA
CATGTCACCT 2180	2250 TAGAGGCCAA          TAGAGGCCAA 2250
AAACTTTGCCA 2170	2240 2250 2260 2270 2280 2290 3300 GTGCTGGGGAGTAGAGGGTAGTGGGCGCTCAGAGGGGGCCACAACAAGGTTGTGCAGGCGGGGGGGTTGTTGTTGTGTGGGGTTGTTGTGCAGGCGGGGGGGG

3090	3100 3110 3120 3130 3130 3150 3160 GCTCACTTCTGTAATCCCAGCACTTTGGTGGCTGGAGGCAGAGAAATTTGAGGTCAGGAGTTTGAGGAAAATTTGAGGTCAGGAGTTTGAGCAAAAATTTGAGGTCAGGAGTTTGAGCAAAAATTTGAGGTCAGGAGTTTGAGGAGAAAAAAAA	70 3180 3200 3200 3200 3200 3200 3200 3200 32	3250 3260 3310 3110  ATAGTCCCAGGACTTTCAGGAGGCTTAGGTAGGAGATCCCTTGAACCCAGGAGGTGCAGGTTGCAGTGAGCTTIIIIIIIIII	3320 3330 3340 3350 3360 3360 3370 3380 GAGATTGTGCCAAAAAAAAAAAAAAAAAAAAAAAAAAAA	3390 3400 3450  AAAAAAAACTGAAGGATTTGGGTCTAATTTGCCCTGAGCACCAACTCCTGAGTTCAAC AAAAAAAACTGAAGTATTTGGTCTAATTTGCCTGAGTCAACTTCAACTTCTCTGAGTTCAAC 3330 3340 3440 3410 3450	3460 3470 3480 3490 3500 3510 3520 TACCATGGCTAGACACCTTAACATTTCTAGAATCCACCAGCTTTAGTGGAGTCTGTCT	30 3540 3550 3560 3570 3580 3600 TTGGAATAGGATGGGGGGTGGCGAGCACCACGTGTGGCAAAAGCACAAAAGGAAAAAGCACAAAAAGCAAAAAAGCAAAAAA
3080	3150 ATTTGAGGTCAG            ATTTGAGGTCAG 3150	3220 TAGCCTGGTGTG              TAGCCTGGTGTG 3220	3290 CCAGGAGGTGCAGG' 	3370 TCTCAAAAAAA               TCTCAAAAAAA	3440 CTGAGCACCAAC                   CTGAGCACCAAC	3510 ACTGGACTCTGT  - - - - - - - - - - - -	3580 AGAGAAAAGCAC
3070	3140 CAGGTAGATC           CAGGTAGATC 3140	3210 ATACAAAAAT 	3280 3 ATCCCTTGAACC 	3360 31GAGACTCTGTC 11111111111 31GAGACTCTGTC 30	3430 CTAATTTGCC            CCTAATTTGCC	3500 CCACCAGCTTT             CCACCAGCTTT 3500	3570 CACGIGIGG
3060	3130 3GTGGCTGAGG            3GTGGCTGAGG	3200 STCTACTAAAA 	3270 GGTAGGAGAA1                       GGTAGGAGAA1	3340 CTGGGTGATAGACT               CTGGGTGATAGACT 3340	3420 AGGATTTGGG1            AGGATTTGGG3	3490 TTTCTAGAAT(           TTTCTAGAAT( 3490	3560 GGGTGGCAG
3050	3120 CCAGCACTTT             CCAGCACTTTT 3120	3190 GAAACCCCAT [             GAAACCCCAT 3190	3260 :AGGAGGCTTA            :AGGAGGCTTA	3330 3340 GCACTCCAGCCTGGG 	3410 ATTATTCCTC.           ATTATTCCTC.	3480 SACCTTAACAT            SACCTTAACAT 3480	3550 SGGCAGTGAG
3040	3110 TTCTGTAATC             TTCTGTAATC	3180 CCAACATGGT 	3250 CCAGGTTTTC               CCAGGTTTTC	3320 TTGTGCCACTGC 1111111111111111 TTGTGCCACTGC	3400 NAACTGAAGGA            NAACTGAAGGA	3470 GGCTAGACAC 	3540 ATAGGATCTG
3030	3100 GCTCAC        GCTCAC 3100	3170 GCTTGG        GCTTGG	ATAGTC        ATAGTC	35 GAGATT        GAGATT	3390 AAAAAA              3390	3460 TACCAT        TACCAT 3460	3530 TTGGAA

4830 4840 4850 4860 4870 4880 4890 CACGGTGGCTCACCCTGTAATCCCAGCACTTTGGGAGGCCGAGGCGGTGGTCACAGGTCAGGAGTTTGA	4900 4910 4920 4930 4940 4950 4960 606000000000000000000000000000000	4970 4980 4990 5000 5010 5020 5030 5040 CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	5050   5060   5070   5100   5100   5100   5100   6202AGAGAGAGGCGCGCCACTCTAGAGAAAAAAAAAAAAAAA	5120 5130 5140 5150 5160 5160 5170 5180  AAAAGGGGATTCAGGGGTTCTACTATTGATTCAGGAAAATTCAGGGTTTATCAG	5190 5200 5210 5220 5230 5240 5250 AGTAGAAGAATCCTTAGGTTAAAAGTTTCTTTCATGATAGCAATAATCACTGAAGCTAGCT	5260 5320 5320 5320 5320 5310 5320 CAAGTCCGCTTCTTATAACAATGCCTCCTAGGTCAGGTC	5330 5340 5350 5360 5370 5380 5390 5400 6400 641	5410 5420 5430 5440 5450 5460 5470 AGGAGAACAGCTGATCTCCAAGTGACACTGTTAGAGTCCAATCTTAGGACACAAATGGT	5500 5530 5540 GTCTCTCTGTAGCTAGTTTTTTTTGAAAGGGTATTTCCTTCC	550 550 560 510 510 510 5580 5590 5600 5610 5600 5610 5600 5610 5600 5610 5600 5610 5600 5610 5600 5610 5600 5610 5600 5610 5600 5610 5600 5610 5600 5610 5600 5610 5600 5610 561	5620 5630 5640 5650 5660 5670 5680 5680 GTAAGGTGAACATCATGAACTCTTCATCTTCATGTGACCATCTTCAGGGGCTTGAGGCCTTGAACTATCACCCCAGGGCTTTGAACTATAACACAGGGCTTGAACTAATAATAATAATAATAATAATAATAATAATAATAAT	5640 5700 5710 5730 5730 5740 5750 5760
3970 3980 3990 4000 4010 4020 4030 AGGGTGGGATCACATGTTCACTTCTGGACTATTATGGAAAATCACAACCAGCAAGGGTATGTG	4040 4050 4060 4070 4080 4090 4100 GAGAGGGGCCTCACCTTCTAGAGGTTTTCATCTTTTTCATCCATC	4110 4120 4130 4140 4150 4150 4160 4170  AAGTCTGAGGTCTTGTGGGGAAGGGAAGGAATTTGCTTCTGAGATCATTTGCTCCTTCGGGAT	4180 4190 4200 6210 4220 6220 4230 62420 6CTGGAAATAGGGACCTATTTGCTTGGTTGCAGTTAACAAGGTGGGGATTTTTCCAGAGTCCCAACCCTG	4250 4260 4270 4280 4290 4300 4310 4320 CAGGTCATCGGGCTATCGGGAATCGAAATGCAAAGACAACAGTAACCGGGTATCGGGTATCGGGTATCGGGTATCGGGTATTGGGTATTGGGGTATTGGGGTATTGGGGTATTGGGGTATTGGGGTATTGGGGGTATTGGGGGTATTGGGGGG	4330 4340 4350 4350 4350 CAGGACCACCACAGGACCACCACAGGACCACCACCAGGACCACC	4400         4410         4420         4430         4440         4450         4460           CTGGAGTGGGAAAATTCGGGCCAGAACAGGGCCTACCTGGAAGGGACTGCCTGC	4470 4480 4490 4500 4510 4520 4530 CTGCAGCAGTTGCTGGAGGAGAGGTGTTTTGGACCAACAAGGTATGGTGGAAACACATTCTGCCCC	4540 4550 4560 4570 4580 4590 4600  TATACTCTAGTGGCAGAGGGGCTTGCAGGCACGGAATCCCTGGTTGGAGGTTCAGAGGTGGCTGGTGGTTTTCAGAGGTGGCTGGTGGTGGTTTTTTTT	4610 4620 4630 4640 4650 4660 4670 4680 GCTGTGTGCCTCTCCAATTCTGGGAAGGGACTTTCTCAATCCTAGAGTCTCTACCTTATAATTGAGATGTA [	4690 4700 4710 4720 4730 4750  TGAGACAGCCACAAGTCATGATTACTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTTATGGCC	4760 4770 4780 4790 4890 CTTGCTTTAACCAATAATCTTTGTATATTAACCGGGGGGGG	404

### ACCAGCCAATGGATGCCAAGGAGTTCG ### ACCAGCCAATGGATGCCAAGGAGTTCG ### ACCAGCCAATGGATGCCAAGGAGTTCG ### ACCAGCCAATGGATGCCAAGGAGTTCG ### ACCAGCCAATGGATGCCCCTGGGG ### ACCAGCCAATGGATGCTGTGCTGTAGCTGTGGGTATCTGGGTATCTGGGTATCTGGGTATCTGGGTATCTGGGTATCTGGGTATCTGGGCTATTGCCAAGGGGTATTTCTGTGTTTTTTTT	GTTCGAACCTAAAGACGTATTG 	5820 TGGGGAAGAGCAGAGATATACG 	5890 TATGTGACTGAGGGGCCAGG 	5960 TGCCAGTGAGATCTGC 	6030 TTTTCTGTTTTAGAGCCCTCAC TTTTCTGTTTTAGAGCCCTCAC 6030	00 GTCATCTTGTTCGAARTT 	6180 6190  GGAAGTCTTAGTACCTCTGC	6250 6260 SCATTTTCTCATTATATTCT 	6320 6330 64 64 64 64 64 64 64 64 64 64 64 64 64 6	6400 AGGGCTTTGAGAAGT 	50 6470 6480  AAGTAAATGTAGTTAAAGAAG	6540 6550 SCAAACAATCACATTCAGC 
ACATCACCATGAAGTGGCTGAAGGATA  (690  (611)  AACATCACCATGAAGTGGCTGAAGGATA (690  5770  5770  5780  5770  5780  5770  5780  5770  5780  5780  5770  5780  5	GCTGAAGGATAAGCAGCCAATGGATGG 	5770	5840         5850         5890         5900           CAGGTGGAGCACCAGGCCTGGATCAGCACCTCATTGTGATCTGGGGTATGTGACTGAC	5910         5920         5970           AGCTGAGAAAATCTATTGGGGGTTGAGAGGGTGCCTGAGGAGGTAATTATGGCAGTGAGATGATGATGAGAGATGAGAGATGATGAGAGATGAT	980 6040 6000 6010 6020 6030 6040 CTTTGTTAGGGGGTGGGCTGGCATCAAAGGCTTTAACTTGCTTTTCTGTTTTAGAGCCCTTTAACTTTTCTGTTTTAGAGCCCCCTTTAACTTTAGAGCCCCCTTTAAGAGCCCTTTAAGAGCCTTTAAGAGGTGGGTG	50   6060   6070   6080   6090   6100   6110   6120   6120   6120   6120   6120   6120   6120   6120   6120   6120   6120   6120   6120   6120   62	6130 6140 6150 6150 6160 6170 6180 6190 GTTCATAGGAAGAGGCAGGGTTCAAGTGAGGAACAAGGGGGGAAGTCTCTTAGTACCTCTT [1] [1] [1] [1] [1] [1] [1] [1] [1] [1]	6200 6210 6220 6230 6240 6250 6240 6250 6240 6250 6240 6250 6250 6250 6250 6250 6250 6250 625	6270 6330 6330 7TGGGGACACCAGAACCAGAACCAGAACCAGAACCCAGAACCCAGAACCCAGAACCCAGAACCCCCAGAACCCCCAGAACCCCCAGAACCCCCAGAACCACC	6340 6350 6360 6370 6380 6390 6400  AAACATCTTCAGAGCACCTATTTGCAAGAGCTGTTTAAGGTAGTACAGGGGCTTTGAGGT*	6420 6430 6440 6450 6460 6470 6480 670 6480 6480 6480 6480 6480 6480 6480 648	6490         6510         6520         6530         6540         6550           ACCCCATGAGGTCCTAAGGCAAGCAAATGCTTAGGGTGTCAAAGGAAAGATGATCAGATCAGATCAGATCAGATCAGATCAGATCAGATCAGATGATCAGATCAGATGATCAGAAGCAAGAAGCAAGAAGCAAAGAAGAAAGA

```
| 130 | 7140 | 7150 | 7160 | 7170 | 7180 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6920 6930 6940 6950 6960 6970 6980
AGRAGITAGATGAGAGAGAGAGAGAGAGATTAGAAAGGATTTCCAGATGAGAGATAATGGTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTCATTTCCTCCGTCACCTCAGAGACATACACCTATGTCATTTCATTTCCTATTTTTGGAAGAGGACTCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7130
```

SACTCCTT	7560 CTAGTCAT         CTAGTCAT 7560	
rtggaagagg 7480	7550 3GGACGTGG         3GGACGTGG	
TTCCTATTT: 7470	7540 TTGAACCCT(            TTGAACCCT( 7540	
TTCATTTCCTCCGTCACCTCAGAGACATACACCTATGTCATTTCTTTTTTTT	90         7500         7510         7520         7530         7550         7560           AAATTTGGGGGACTTACATGATTCATTTAACATCTGAGAAAAGCTTTGAACCCTGGGACGTGGCTACTATTTAACATCTGAGAAAAGCTTTGAACCTGGGACGTGGCTGCTGAAAAAAGCTTTGAACATCTAAAAAAGCTTTGAACCTGGGACGTGGCTACATCATTAAAAAAGCTTTGAACCTGGGACGTGGCTACATCATTAAAAAAGCTTTGAACCTGGGACGTGGCTACATCATTAAAAAAGCTTTGAACCTGGGACGTGGCTACATCATTAAAAAAAA	
ATACACCTAT 7450	7520 TTTAACATCT           TTTAACATCT	
CCTCAGAGAC 7440	7510 CATGATTCAT            CATGATTCAT	
TCCTCCGTCA 7430	7500 GGGGGACTTA            GGGGGACTTA 7500	
TTCATT 7420	7490 AAATTT        AAATTT 7490	

| 8210 | 8220 | 8230 | 8240 | 8250 | 8260 | 8260 | 8280 | 8280 | 8260 | 8270 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 | 8280 |

8350	8420 AATAAAAATA          AATAAAAATA 8420	8490 TAGAAACAGG            TAGAAACAGG	8560 TAGATGCCTAGA             TAGATGCCTAGA 8560	8640 TGAATCACAT [        TGAATCACAT 8640	8710 :TGAAGGAAGG            :TGAAGGAAGG	#720 #730 #740 #750 #760 #770 #780 #780 #770 #780 #770 #780 #770 #780 #770 #780 #770 #780 #770 #780 #770 #780 #770 #780 #770 #77
8340	8410 ATCTCAAAAA               ATCTCAAAAA 8410	8480 TTGTCAGTGA                TTGTCAGTGA	8550 TTCAGTAGTTTA               TTCAGTAGTTTA 8550	8630 TGAGTGAGCT7 	8700 TAAAAGTCCC 111111111 TAAAAGTCCC 8700	8770 TTTGGACCCT            TTTGGACCCT
8330	8400 GTGAGACTCC            GTGAGACTCC 8400	8470 :ATCTCATAGT 	8540 85 CACCACTACATT	8620 IGTGTTTCTTC: 	8690 CATGTTTCCTT	8760 SCATTCATTTC 
8320	8390 !AGGTGACAGA             !AGGTGACAGA 8390	8460 \aGTATAGAGI                \aAGTATAGAGI 8460	8530 85 PACATCTCAGACA 	8610 CTTGTCTCATTC 	8680 CCTCAGCTGTG IIIIIIIII	8750 SCICICITIGG 
8310	8380 SACTCCAGCCT 	8450 AAAGAAAGTGA            AAAGAAAGTGA	8520 ACCGTTTGATAC 	8600 FGGCTCTTCTC'             FGGCTCTTCTC' 8600	8670 ACCAACTGATU           ACCAACTGATU 8670	8740 CTCCTCTGTTC 
8300	8370 receccacrec              receccacrec 8370	8440 ATGAAAAAAA           ATGAAAAAAA	8510 AGTCAATCTGA(            AGTCAATCTGA( 8510	0 AGGAAGGAGATC 	8660 GCAGAAACA            GCAGAAAACA 8660	8730 GACTCCCTTG               GACTCCCTTG
8290	8350   8370   8380   8390   8400   8410   8420   8400   8410   8420   8400   8410   8420	8430         8440         8450         8470         8480         8490           AAAATAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	8500   8510   8520   8530   8540   8550   8560   8770   8780	8570   8580   8590   8600   8610   8620   8630   8640   8784	8650         8660         8710           GAAGGGAACAGCAGAAAACAACGATCGTGATCGTGTTTCCTTTAAAAGTCCCTGAAGGAAG	#720 #730 #740 #750 #760 #770 #780  TCCIGGAAGGCCCTTGCTCCTCTTTGCTTTTGGCATTCTTTGGACCCTACGCAAGGAC

```
TTTTCATTCAACTGTGGTAGCCGAATTAATCGTGTTTCTTCACTCTAGGGACATTGTCGTCTAAGTTGTAGGTTGTAGGTTGTAGGTTGTAGGTTGTAGGTTGTAGGTTGTAGGTTGTAGGTTGTCTTAGTTCAATTCAAGTTGTAGAATTAATCGTGTTTCTTCACTCTAGGAACATTGTCGTCTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTAAGTTAAGTTAAGTTAAGTTAAGTAAGTTAAGTTAAGTAAGTTAAGTTAAGTAAGTTAAGTTAAGTAAGTTAAGTTAAGTAAGTTAAGTAAGTAAGTTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGTAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9930
                                                                                                                                         9350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9630
                                                                                                                                       9340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9620
                                                                                                                                     9330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9610
                                                                                                                                     9320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       10040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0686
                                                                                                                                     9310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9590
                                                                                                                                  9300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9580
                                                                                                                                9290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10010
```

```
TACATTTGAAAATCAAAGACCTGCATTTTAAATTCTTTCACCTCTGGCAAAACCATTGACAAACGATGG
                                                                                                                                                                .0660 10670 10680 10690 10700 10710 10720
GTACAGCAGCTGATTGAGAGTGCTGAGAGGTACAGGCCAAAATTCTTATGTTGTATTATAATAATGTCATC
                                                                                                                                                                                                                                                                                                                                                                                                0 7 7
                                                                                                                                                                                                                                                                                                                                                                                               Significance
Mismatches
                                                                                                                                                                                                  10570
                                                               10280
                                                                                               10350
                                                                                                                                                                                                                                                                                                                                                                            US-09-497-957-1 (1-10825)
US-09-497-957-5 Sequence 5, Application US/09497957
                                                                                                                                                                                                                                                                                                                                                                                               Optimized Score = 10825
Matches = 10823
Conservative Substitutions
                                                                                                                                                                                                  10560
                                                              10270
                                                                                               10340
                                                                                                                                                                                                 10550
                                                              10260
                                                                                                                                                                                                                                  10620
                                                                                               10330
                                                                                                                                                                                                                                                                                                                                                                                               Optimized
                                                                                                                                                                                                 10540
                                                             10250
                                                                                                                                                                                                                                  10610
                                                                                                                                                                                                                                                                                                                                      10320
                                                                                                                                                                                                                                                                   10680
                                                                                                                               10390
                                                                                                                                                                                                                                                                                                                                                                                               10825
99%
0
                                                                                                                                                                                                 10530
                                                             10240
                                                                                                                                                                                                                                  10600
                                                                                               10310
                                                                                                                                                                                                                                                                   10670
                                                                                                                               10380
                                                                                                                                                                                                                                                                                                    10740
                                                                                                                                                                                                                                                                                                                                                                                                   Identity
                                                                                                                                                                                                 10520
                                                             10230
                                                                                                                                                                                                                                  10590
                                                                                             10300
                                                                                                                                                                                                                                                                                                                                                                                              Initial S
Residue I
Gaps
                                                                                                                                                                                                                                                                                                    0730
```

```
1800
                                                                                                                                                                                                                                                                                                                                                                                                                                                             1160 1170 1180 1220 1220 1220 1220 1210 1210 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1220 1
1580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1660
```

| 2100 | 2110 | 2120 | 2130 | 2140 | 2150 | 2150 | 2160 | 2200 | 2150 | 2160 | 2150 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 2160 | 

| 110 | 2820 | 2830 | 2840 | 2850 | 2860 | 2870 | 2880 | 2870 | 2880 | 2870 | 2880 | 2870 | 2880 | 2870 | 2880 | 2870 | 2880 | 2870 | 2880 | 2870 | 2880 | 2870 | 2870 | 2870 | 2870 | 2880 | 2870 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2880 | 2 

.70 3180 3190 3200 3210 3220 3230 3240 GCTTGGCCAACATGGTGGTGGTGTCTACTAAAATACAAAAATTAGCCTGGTGTGGTGGTGGCGCACGCCT 3250 3260 3310 3310 ARAGTCCAGGTTTCAGGAGGTTAGGTAGGTAGAGAGAATCCCTTGAACCCAGGTGCAGGTTGCAGGTTGCAGTGAGCT 

4330 4340 4350 4360 4370 4380 4390 4400 4410 4420 4430 4440 4450 CTGGAGTGGGAAAGGCACAGGAAACAGGCACTACCTGGAGGGCACTGCCAGG	4540 4550 4560 4570 4580 4590 4600  TATACTCTAGTGGCAGAGGGGAATCCTGGTTGGAGTTCAGAGGTGGCTGAG TATACTCTAGTGGCAGAGGGGAATCCCTGGTTGGAGTTCAGAGGTGGCTGAG  [	4690 4700 4710 4720 4730 4740 4750  TGAGACAGCCCAAGTTAATTTCTTTTTCCATGCTTAAGGCCAAGTGTATGCCC	4830 4840 4850 4860 4870 4880 4890 4890 CACGGTGGCTCACCACCACCACCACCACCACCACCACCACCACCACCA	4970 4980 4990 5000 5010 5020 5030 5040 CCTGTAGTGCCAGCTGAAGGCTGAGGCAGGCAGGCAGCAGCAGGAAGCTGAAGTTGCACTGA GCTGAGGCAGCAGCAGCAGCAGCAGCAGCAGAAGCTGAAGTTGCACTGA GCTGAGGCAGCAGAGCAG	GCCAAGATCGCGCCCACTGCACTCCCAGGCAGCAGTGAGACTCATCTTAAAAAAAA	
TACCATGGCTAGACACCTTAACATTTCTAGAATCCACCAGCTTTAGTGGAGTCTGTCT	3610 3620 3630 3640 3650 3660 3670  3680 3690 3700 3710 3720 3730 3740  GATGTATGATGCAGGTGTGGAGCCTCAACATCCTGCTCCCCTCTACTACACTGTTAAGGCC  GATGTATGATTGATGCAGTGTGGAGCCTCAACATCTGCTCCCTCC	3820 3820 3820 3820 3840 3850 3870 3870 3870 3870 3870 3870 3870 387	3800 3900 3900 3910 3920 3920 3930 3950 3960 3970 3980 3980 4000 4010 4020 4020 3970 3980 3990 4000 4000 4000 4000 4000 4000 400	4040 4050 4060 4070 4080 4090 4100 4110 4120 4130 4140 4150 4160 4170  AAGTCTGAGGTCTTGTGGGAGGAAGGGAAGGAATTTGCTTCCTGAGATCATTTGGTCCTTGGGGAT	4180 4190 4200 4210 4220 4230 4240 GGTGGAAATAGGAACTATTCCTTTGGTTGCAGTTAACAAGGCTGGGGATTTTTCCAGAGTCCCACCCTG	4250

6-E	0-0	E1 E1	<b>04−40</b>	641 C C C C 641	<b>4</b> − <b>4</b>	Ĥ <b>—</b> Ĥ	ă – ă	0 H — H 0	677) G L G;	ř–ř	AC AC
5260 5270 5280 5290 5300 5310 5320 CAGGCCCTTCTTATACAATGCCTCCTAGGTGACCCGGGGAACTGGCATCGATTTAATTCATTTT	5330 5340 5350 5360 5370 5380 5320  CANTICACATAAAGGCAATTTTATCTATCAGAACAAGAGTGGGTAACAGATTTTATTTA	5410 5420 5430 5440 5450 5460 5470 AGGAGAACAAGCTGACTGCTCCCAAGTGACACTGTGTTAGAGTCCAATCTTAGGACACAAATGGT	5480 5540 5500 5510 5520 5520 5540 GTCTCTCTGTAGCTTTTTTTCTGAAAAGGGTATTTCCTTCC	5550 5560 5570 5580 5590 5600 5610 CCAGTCTTCCTGGCAAGGGTAACAGATCCCTCTCCTCTTTCCTGTCAAGTGCCTCTTTG [	5620   5630   5640   5650   5670   5680   5680   5670   5680	5690         5700         5710         5720         5730         5760         5760           AACATCACCATGAAGGATAAGGAGCCCAATGGATGCCAAGGAGTTCGAACCTAAAGACGTATTG	S770   S780   S780   S810   S830   S830   CCCAATGGGGATGGGACTACCAGGGATACCTTGGCTGCCTGGGGAAGAGCAGAGATATACG   I   I   I   I   I   I   I   I   I	5840         5850         5860         5870         5890         5900           INCCAGGTGGACCCCAGGCTCATTGTCATCTCGGGTATGTGATGTGAGCCAGG           I	5910 5920 5930 5940 5950 5960 5970 AGCTGAGAAAATCTATTGGGGGTTGAGGAGGTGCCTGAGGAGGTAATTATGGCAGTGAGGATCTGC	5980 5990 6000 6010 6020 6030 6040  TCTTTGTTAGGGGGGGGGGGGGGGGGGATCAAAGGCTTTAACTTGCTTTTTAGAGGCCTCAC	6050         6060         6090         6100         6110         6120           CGTCTGGCACCCTAGTCATCAGTGGAATTGCTGTTTTTGTCCTCATCTTGTTCATTGGAATTT         111111111111111111111111111111111111

```
7040
                            7030
                            7020
                            7010
                            7000
                            0669
```

<b>TGAAATCCAATAGTGCCCAGGTCTAAATTGAGATGGGTGAATGAGGAAAATAAGGAAGAGAGAGAGAGAGGGCAAG</b>		TGAAATCCAATAGTGCCCAGGTCTAAATTGAGATGGGTGAATGAGAAAATAAGGAAGAAGAGAAGA	7050
AATAAGGAAGA	=======================================	AATAAGGAAGA	7040
TGAATGAGGAA		IGAATGAGGAA	7030
TTGAGATGGG	=======================================	TTGAGATGGG	7020
CCAGGTCTAAA		CCAGGTCTAAA	7010
CCAATAGTGC		CCAATAGTGC	0007
TGAAA	=	TGAAA	0669

| 7500 | 7500 | 7510 | 7520 | 7530 | 7540 | 7550 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 | 7560 |

	7930 7940 7990 7990 7990 7990 7990 7990 799	8000         8010         8020         8030         8040         8050         8060           ATGATAAAAGCACTTACTTGGGCACCTACTTACATGCATTACTGCATGCA	8070 8080 8090 8100 8110 8120 8130 ACAATAATTCTATGTAGTAGTACTATTATATCTATGAGAAAGTCAAGTAGGGGGGGG	### ### ##############################	8210   8220   8230   8240   8250   8260   8270   8280   8260   8270   8280   8260   8270   8280

9580 9590 9600 9610 9620 9630 9640	9650 9660 9700 9720  TTAATTAGCAGGGAAAAACTATTAACAACTTATTACCGGGTTAGTATTATTGTTGCATTAAAAATGCA  [	9730 9740  TATACTTTATATATGTATGTATGTATACGCATGATTTATTCAAGTTCTTGTTGTATATGTATATGTATATGTATATGTATATGTATATGTATATGTATATGTATATGTATATGTATATGTATATGTATATGTATATGTATATGTATATGTATATGTATATGTA	9800  TACTTARTCGCTTTGCGACATTTTGGACATTTTGCTTCTTACTTTTTTTT	9870 9880 9890 9900 9910 9920 9930 TITTCATCAACTGTGGGACCATTGTCGTCTAAGTTGTAAGTTAAGTTGTAAGTTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTGTAAGTTAAGTAAGTAAGTTAAGTTAAGTTAAGTTAAGTTAAGTTAAGTTAAGTTAAGTTAAGTTAAGTTAAGTTAAGTAAGTTAAGTTAAGTTAAGTTAAGTTAAGTTAAGTTAAGTTAAGTTAAGTTAAGTTAAGTTAAGTAAGTTAAGTAAGTTAAGTTAAGTAAGTTAAGTTAAGTAAGTTAAGTTAAGTAAGTTAAGTAAGTAAGTTAAGT	9940 9950 9960 9970 9980 9990 10000 ACATTGGTTATTTACCACAACTATTGGAACCATTGGAACCATATGGTTATTTCTCTTTAATACTACTATTTCTTTTACTACTACTA	10010 10020 10030 10040 10050 10060 10070 10080 ACTGARAGGGACTCCTARATAGGCTTCACTTACTCTCTCTCTACTCATAGGGATTACATTAATTTATT	10090 10100 10110 10120 10130 10140 10150 AGGTAAGCAACTTTGATGATATTGATTTATTTATTTATTT	10160 10170 10180 10190 10200 10210 10220 GTARACACATTACATARACACATATACATCACACACATAGGGCCTGTAATTTTTAATAGAAATTTT	10230 10240 10250 10260 10270 10280 10290 AAGTCCTCATITTCTTTCTTTTTTTTAAGTTTAATTTTTCTTAATTTTTTAAGTTCAAC	10300 10310 10320 10330 10340 10350 10360 TATTTCAAAATCCAAAACCATTGCAAACCATTGCAAACCATTGCAAACCATTGCAAACCATTGCAAACCATTGCAAACCATTGCAAACCATTGCAAACCATTGCAAACCATTGCAAACCATTGCAAACCATTGCAAACCATTGCAAAACTTGAAAATTCTTAAATTCTTATTCACCTTGGCAAAACCATTCACAAACCATTGCAAACCATTGCAAAACAATTGCAAAAAAAA	10370 10380 10390 10400 10410 10420 10430 10440 TAGTAAAAGGGTAACCTGGTGGCCATAGGTAAATGTTACAGGGTGGTCGGTGACCAGAGATGCAGGTGGTCGTTGTACAGGAACGTGGACCAGAGATGCAGGTGGTCGGTGGTCGGTGACCAGAGATGCAGGTGGTGGTGGTGCGTGACAGAGATGCAGGTGTGTGT	10450 10460 10470 10480 10490 10500 10510 CGCTGAGGTTTTCCTGAAGGAATAAAGAATGGGTGGAGGGCGTGCACTGGAAATCACTTGTAGA
TCCTGGAATGIGACTCCCTTGCTCCTCTTTTGGCATTCATTTCTTTGGACCCTACGCAAGGAC 8720 8730 8740 8750 8750	### ### ##############################	8860         8870         8880         8900         8910         8920           GAGTCAGAACTCTGGTGGTATTTCCCTCAATGAAGTGGAGTAAGCTCTCTATTTCAGATGGTATATGGA         1   1   1   1   1   1   1   1   1   1	8930         8940         8950         8960         8970         8980         8990         9000           AGCCACCAAGTGGCTTAGAGGATCCTTCCATGGGGCTTCCGGTGCACTTAAAAA         111111111111111111111111111111111111	9010 9020 9030 9040 9050 9060 9070  AAAATCTAACCAGGACATTCAGGAAATTGCTGGGAAATCAGTTCACCATGTTCAAAAGAGTCTTTT	9080 9090 9100 9110 9120 9130 9140 TITITITITAGAGCTCTATTGCCCAGGCTGGATGGCATGATCTCGGCTCACTGTAACCTCTGCCT	9150 9160 9170 9180 9190 9200 9210 CCCAGGTTCAAGGATTCTCAGCTTCAAGTAGCTGGGATTACAGGGGTGCACCATGCCG	9220 9230 9240 9250 9260 9270 9280 GCTAATITITGTATITITAGTAGAGACAGGGTTTCACCATGTTGGCCAGCTGGTTCCAACTCTCCTGACC	9290 9300 9310 9320 9330 9340 9350 9360 TGGTGATCCGCCTCGGCCTCCCAAAGTGCTGAATTACAGGTGTGAGCCACCCTGCCCAGCGTCAAA	9370 9380 9390 9400 9410 9420 9430 AGAGTCTTAATATATATATCCAGATGGCATGTGTTTACTTTATGTTACTACCATGCCTCCATAAATG	9440 9450 9460 9470 9480 9490 9500 TGGTACAAGCATTCTGTCTTGAAGGGCAGGTGCTTCAGGATACCATATACAGCTCAGAAGTTTCTTTTAG	9510 9520 9530 9540 9550 9560 9570 9560 9570 9560 9570 9560 9570 9570 9570 9570 9560 9570 9570 9570 9570 9570 9570 9570 957	9580 9590 9600 9610 9620 9630 9640 TGTAGAAAAAGTAAAIGTGATTAGGCTCATTGTAGAAAAGCTATAAAATGAATACAATTAAAGCTGTTAT [

	ფ <b>–</b> ფ	
10580	GAAAGCCCTGAAAATTTGAGAAAACAACAAGAAACTACTTACCACCTATTTGAATTGCTGGAATCACAG           [1] [1] [1] [1] [1] [1] [1] [1] [1] [1]	
10570	ATTTGAATTGCT               !ATTTGAATTGCT 10570	
10560	ACTTACCAGCT 	
10550	ACAGGAACTA 	
10540	3AGAAAACAAA 	
10530	TGAAAATTTG 	
10520	GAAAAGCCCC 	

10810 10820 X
TAAANTCCCCAAATTTTCATAAC
||||||||||||||||||
TAAANTCCCCAATTTTTCATAAC
TAAANTCCCCAATTTTCATAAC

## 3. US-09-497-957-1 (1-10825) US-09-497-957-3 Sequence 3, Application US/09497957

Initial Score - 10825 Optimized Score - 10825 Significance - 4.02 Residue Identity - 99% Matches - 10823 Mismatches - 2 Gaps - 0 Conservative Substitutions - 0

| 150 | 160 | 210 | 210 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220

 1250

370   380   400   410   420   430   430   440   440   450   440   450   440   450   440   450   440   450   440   450   440   450   440   450   440   450   440   450   440   450   440   450   460   440   450   460   460   460   460   450   460   450   460   460   460   450   460   450   460   450   460   450   460   450   460   450   460   450   460   450   460   450   460   450   460	410 420 430	490 SGAAAAATGGAACTTTTTCT 	560 CGCAAGCCCTCTCCCTACTTTCTG 	630 GTCCTCGCCCAGGCCTGCCCCC	700 TCCTTCCCCAACTAGATGCTTT TLIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	770 780 790 TCCTTGAACTGGGTTTA TITLITITITITITITITITITITITITITITITITITI	0 850 860 GAAGTTCTCCCTGAGTGCTTGCCG GAAGTTCTTCCCTGAGTGCTTGCCG 0 850 860	920 CAGAACGAATGCGTTGGGCGTGGG 	990 CACTITIGGIGAAACCIGGGGIGGA 
E	380 390	440 450 500 CTGCGTGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG	\$10 : 520 \$30 \$40 \$50 \$10 TGCGCTTGGAGCACCTAX	580 630 640 640 620 630 640 620 630 630 640 630 630 640 630 630 640 640 640 640 640 640 640 640 640 64	650 660 670 680 690 TCCCCGGCTCTGCGGAGTGACTTTTGGAACGCCCC	730 TAAATAAATCTCGTAGTTCCTCACTTGAGCTGAGCTGGG 111111111111111111111111111111111	800 TITCCAATGTCAGCTGTGCAGTTTTTCCCCAGTCATCTCCCAAAC 	870   880   890   900   900   AGAAGGCTGAGCAAACCCACAGGGATTCCAC	940 950 960 970 980 0000 0000 0000 0000 0000 0000

_												
_	380 SAACATAAATAA 	30 TTGCCCTGTAG TTTGCCCTGTAG TTTGCCCTGTAG 30	1510 TACGTGTATCC                 TACGTGTATCC	1580 ATGGTACACTGG             ATGGTACACTGG	1650 ATTAGAGGTTGA 11           ATTAGGGTTGA	720 CATGTTGCA IIIIIIIIII CATGTGTTGCA	1800 CCTAGTGGGAGA ILIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	1870 SAAGCAGAGAAG 	1940 ATTGACTGGBAG               ATTGACTGGBAG	2010 AGCACTACTCAT 11111111111111111111111111111	2080 GTAGGATGTCTA GTAGGATGTCTA 2080	50 AAAATGTCTCT 11111111 AAAATGTCTCT 50
	1300 1310 1350 1350 CGTTTACTAGAAGTAACTGGAATTCAGATTATATAACTCTTTTCAGGTTACAAGAACATAAATAA	70	1450 1460 1470 1480 1490 1510  IGTAGCACAGTGTTCTGTGGGTCACGCGGCCTCAGCACACACTTTGAGTTTTGGTACTACGTGTATCCTATCGTATCTTTGGTACTACGTGTATCCTATCGTATCTATC	1520 1530 1540 1550 1560 1570 1580 ACTITIACACATGACAAGAAGAGCACGGCCAGCTTCCTGGCAAATTTATTCAATGGTACACTGGTACATGTTTTTACACATGACGATGCCACGCCTGCTTCCTGGCAAATTTATTCAATGGTACACGGATGCCACGCCTGCTTCCTGGCAAATTTATTCAATGGTACACGCACG	1590 1600 1610 1620 1630 1640 1650 1650 1640 1650 1650 1650 1650 1650 1650 1650 165	1660	30 1740 1750 1760 1770 1780 1790 1800 CTGTTCAAGCCCCAAGGGAAACAAGTCTTTACCCTTTGATTTTGCATTCTAGTGGGAGA GTGTTTAACCCTTTGAATATTTTGCATTCTAGTGGGAGA GTGTTCAAGCCCCAAGGAGAGAGAGAACAACCCCAAGGAAACAAC	1810 1820 1830 1840 1850 1860 1870 GATGACAATAAGCAATGACAATAACAACATCAGGAAATCATGGGTGTTGTGAGAAGCAGAGAA HIIHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH	1880 1890 1900 1910 1920 1930 1940  ICAGGGCAAGTCACTCTGGGGCTGACATGAGGAGGACATGAAGGAAATAGATATGACTGGGAG	1950 1960 2000 2010 CAGTATTTCCCAGGCAAACTGGGCCTGGCAAGTTGGATTAAAAAAGGGGTTTTCTCAGCACTACT [	2020         2030         2040         2050         2060         2070         2080           GTGTGTGTGGGGGGGGGGGGGGGGGGGGGACTACCATCTGCATGTAGGATGTCT	990 2100 2110 2120 2130 2140 2150 2150 2160 2150 2160 2150 2160 2150 2160 2150 2160 2150 2160 2150 2160 2150 2150 2150 2150 2150 2150 2150 215
	1320 1330 GTTAACTGGAATTCAGAITAT. 	1390  NATTCAAGTACTACAGCTGCT  (11111111111111111111111111111111111	1460 GTGGGTCACGCGGCCTCAG   111111111111111111111111111111111111	1540 1550 AGAATCAGGCATGCCACGCCC	1610 1620 CATGTCTCCACTTCATAGCTA 	1680 1690 TTGAGCAGAATATTCATTGTT" 	1750 1760 SGAGAGCAGGAAACAAGTC 	1820 1830 18 TGAGCAGAAAGATATACAACAT 	1910 1910 1910 166GCTGACACTTGACCAGAGAGAGAGAGAGAGAGAGAGAGAG	1970 1980 ACTGAGTGGGCTGGCAAGTT.	2040 2050 secedesceceredesres 	2110 2120 CTACTCACTAGGTGCTAGGAG 
•	1300 1310 CGTTTATTTACTAGAA 	1370 TCTGGTTTTCTGATGTT               TCTGGTTTTCTGATGTT 1370	1450 TGTACCACAGTGTTCTG                  TGTACCACAGTGTTCTG	1520 1530 ACATTTACACATGACAA 	1590 1600 GCTTTGGTGGCAGAGCT 	1660 1670 ATAATAAATTICATGT 	1730 CTGTTCAAGCCCCAAGG 	1810 GATGACAATAAGCAAAT 	1880 1890 TCAGGGCAAGTCACTCTGG 	1950 1960 CAGTATTCCCAGGAA 	2020 2030 GTGTGTGTGTGGGGGG 	2090 2100 GCAGTATCCTGTCCTCC 

```
2170

2180

2210

2220

2230

2230

2230

2230

2210

2210

2220

2230

2230

2230

2230

2230

2230

2230

2230

2230

2230
                  2590
                                                                                                                                                                                        2950
                                                                                                                                                                                                           3020
                                                                                                                                2730
                                                                                            2580
                                                                                                                                                                                        2940
                                                                                                                                                                                                           3010
                                                                                                                                2720
                                                                                                                                                                                                                              3080
                                                       2430
                                                                                            2570
                                                                                                                                                                                        2930
                                                                                                                                                                                                           3000
                                                                                                                                 2710
                                                       2420
                                                                                            2560
                                                                                                                                                                                        2920
                                                                                                                                                                                                           2990
                                                                                                                                 2700
                                                       2410
                                                                                            2550
                                                                                                                                                                                        2910
                                                                                                                                                                                                           2980
                                                                                                                                 2690
                                                                                                                                                                                                                              3050
                                                       2400
                                                                                            2540
                                                                                                                                                                                        2900
                                                                                                                                                                                                                              3040
                                                                                                                                 2680
                                                       2390
                                                                                            2530
                                                                                                                                                                                        2890
                                                                                                                                 2670
                                                                                                                                                                                                                              3030
                                                       2380
```

Wed

5620 5630 5640 5650 5660 5670 5680	\$690 \$700 \$710 \$720 \$750 \$750 \$750 \$750 \$750 \$750 \$750 \$75	5770 5780 5830 5830 5830 5810 5820 5830 5830 5810 5820 5830 5830 5830 5830 5830 5830 5830 583	5840	5910 5970 5970  AGCTGAGAAAATCTATTGGGGTTATTGGAGGGTGCTGGGTGAATGGCAGGGGGAGTTGCTGCTGCTGCTGGGGTGAATGGCAGGTGAATGGAGGAGTCTGCTGCTGCTGCTGGGGTTATTGGGGGTTTGGGGGTTGAGGAGGTGCCTGAGGAGGTAATTATGGCAGTGAGAATCTATTGGGGGTTGAGAGGTGCCTGAGGAGGTAATTATGGCAGTGAGATCTGC 5910 5920 5930 5940 5950 5960 5970	5980 6040 6010 6010 6020 6030 6040  TOTTTOTTAGGGGGGGGGGGGGGGGGCARTCAAAGGCTTTAACTTGTTTTAGGCCCTCAC	6050 6060 6070 6080 6090 6100 6110 6120 CGCCTCGCGACTTGGGGATTGGGGGGGGGGGGGGGGGGG	6130 6140 6150 6160 6170 6180 6190 TGTTCATAATTTAAGAAGAGGGGGGTTCAAGTGAGTAGAACAGGGGGAAGTCTTTGGTACTTGGGGGAAGTCTTTGGTAGTAGTAGAAAAAGGGGGAAGTCTTTGGGGAAGTCTTTGGGGAAGTTCATAATATTAAGGAAGG	6200 6210 6220 6230 6240 6250 6260 cccadeGcacacacacacacacacacacacacacacacacacaca	6270 6380 6390 6310 6310 6330 6330 TTGGGGACACCAGGAGACACAGAATAATGTTCTCCCCAGAATGAAGTCTTAATTCAAC	6340 6350 6360 6370 6370 6380 6390 6400  AAACATCTTCAGAGCACCTACTATTTTGCAGAGCTGTTTAAGGTACTACAGGGCTTTGAGGTTTAAGATT	6410 6420 6430 6440 6480  CCTCTCTCTTCTCTTTCTCTCAATCTGCTAGGAATGCAATGCAAGTAAATGTTAAGAAG  [	6490 650 6550 ACCCCATGAGCAGGCAGGAAGCAAAAGGAAAGGAAAGAAA
CTTGCTTTTATTAACCAATAATCTTTGTATATTATACCTGTTAAAATTCAGAAATGTCAAGGCCGGG 4760 4770 4780 4780 4800 4810 4820	4830 4840 4850 4860 4870 4880 CAGGACTCACAAGGACTTTGA CAGGGTGGCTCACCCTGTAATCCCAGCACTTTGGAAGGCCGAGGCGGTGGTCACAAGGTCAGGAGTTTGA 	4960 ACAGT        ACAGT	4970 4980 4990 5000 5010 5020 5030 5040 CCTGTAGTCCCAGCTAATTGGAAGGCTGAGGCAGGCATCGCTTGAACCTTGGAAGTTGCATGA TTGCAAGGCTGAGGCAGGGCATCGCTTGAACCTTGGAAGTTGCATTGA TTGCAAGGCTGAGTTGTTTTTTTTTT	5050 5060 5070 5080 5090 5100 6020AGAGAGAGAGAGAGAGAGAGAGAGAGAGAGAGAGAGA	5120 5130 5140 5150 5160 5170 5180  AAAAAGAGAATTCAGACTATCAGTATCAGAAATACAGAAAATATCAAGTGAGCCACTTATCAGAATACAGAATTCAACATTTATCAGTTTAGAATTCAACATTTATCAGTTTAGAGTTAGAGTTTAGAGTTTAGAGAGTTAGAGAGTTAGAGAGTTAGAGAGTTAGAGAGTTAGAGAGTTAGAGAGTTAGAGTTAGAGTTAGAGTTAGAGAGTTAGAGAGTTAGAGAGTTAGAGAGTTAGAGAGTTAGAGTTAGAGTTAGAGAGTTAGAGAGTTAGAGAGTTAGAGAGAGAGTTAGAGAGTTAG	5190 5200 5210 5220 5230 5240 5250 AGTAGAAGAATCCTTTAGGTTAAAAGTTTCTTTCAAGACATAACAATAAACACAGAAAAGCTTAAAAGAAAAGAAAAGAAAAGAAAAGAAAAAGAAAAAAA	5270 5280 5290 5310 5310 CGCTTCTTATAACAATGCCTCCTAGGTTGACCCAGGTGAACTGACCATTG CGCTTCTTATAACAATGCCTCCTAGGTTGACCAGGTGAAACTGACCATTG CGCTTCTTATAACAATGCCTCCTAGGTTGACCAGGTGAAACTGACCATTG 5270 5310 5310	5340 5350 5360 5370 5380 5380 5370 5380 5380 5380 5380 5380 5380 5380 538	5420 5430 5440 5450 54 IGATCTGCACTCTCCAAGTGACACTGTGTTACAGTCCAATCTTACTCATCTCTCCAAGTGACCTGTTACAGTGACTGTACAGTGATTACAGTCATACTTACAGTCAATCATACAGTCAATCAA	5480 5540 550 550 5510 5520 5530 5540 607CTCTCTCTGTAGAAGGAAGTGAAAGGTATTTCTTTCTTCTTCCTTC	5560 5570 5580 5590 5600 5610 CCTGGGAAGGGTAAACAGATCCCTCTCCTCCTCTTTTCTCTGTCAGTGCTCTCTTTTTCTTTTTCTTTAAACAGTGCTCCTGGGAAGGGTAAACAGATCCCTCTCTCT	5630 5640 5650 5660 5660 5670  3GACATCATGACCTCTTCAGTGACCACTCTAGGGTGTCGGGCCTTGA

7420 7430 7440 7450 7460 7470 7480 TTCATTTCCTCCCTCAGACATACACCTATGCTCATTTCATTTTCGAAGAGACCTTTTTTTCTTTTTTTT	AAATTIGGGGGGTTACATGATTCATTTAACATCTGAGAAACCTTGGACCTGGGGGGGG	7640 7650 7600 7670 7680 7700 7700 7700 7011111111111111111111	CACCTATGARGGCTACCACGAACGACCACCACTCCCACAAAAACATCATGCTATCTGC 7710 7720 7730 7740 7750 7750 7770 7770 7770 7770 777	7850 7860 7870 7880 7890 7990 7990 7990 7990 799	7930 7940 7950 7950 7960 7970 7970 7980 7990 7990 7990 7990 799	8000   8010   8020   8030   8050   8060   8060   8050   8060   8050	8070 8080 8090 8100 8110 8120 8130 ACARTATTCTARGAGGAGGAGGAGGAGGGGGGGGGGGGGG	#140 #150 #160 #170 #180 #190 #200  ACGGGGGCTCACCCCTGTAATCCCCACACTTGGGGGGCGCGCGGGATCGA	8210 8220 8230 8240 8280 8280 8280 8280 8280 8270 8280 828	8350 8300 8310 8320 8330 8340 8350
6560 6570 6580 6590 6600 6610 6620 TGGGGATCAAGATGGATCTTGAAGGAGGAGGTGGATTGAAGATGAGGTGGGTL1111111111	AGGICTACACAGACGAACCATGCCAAGTAGAGAGATTIIIIIIIIII	6770 6770 6770 6770 6770 6770 6776 6770 6776 6770 6776 6770 6770 6870 68		6920 6930 6940 6950 6960 6970 6980 6990 7000 7010 7020 7030 7040 7050 TGAAATCCAATAGTGCCAAGTCTAAATTGACATGGGTGAATGAGGAAATAGGGAAGAGGAAGAGGCAAG	7060 7070 7080 7080 7090 7100 71000 71100 71000 71000 71100 71000 71000 71100 71100 71200	7130 7140 7150 7160 7170 7180 7200 CTTAGGTGAAGGTGAAGGGAGCTGAGGAACACACTGGGAAGAACACAAAAGAAGAACTGAAGGAACACAAAACTAGAAGGAACACAAAGAAGAAGAAGAAGAAGAAGAAGAAGA	7210 7220 7230 7240 GGGAGTGCATTATGAGCGAGAGAGTGAACCTAAAAATTGCCTGACAACT	7280 7390 7310 7310 7320 7330 7340 7320 7330 7340 7330 7340 7330 7340 7330	7350 7360 7370 7380 7380 7380 7410 CGGTGATCCCTAGCTCTCCCTGGAACTCTCTCTGAAGCTGCATCTAGAGGCTTCC 1	0001 0001 0001 0001 0001 0001 0001

CCCAGGTTCAAGCGATTCTCCTGTCTCAGCCTCCCAAGTAGCTGGGATTACAGGCGTGCACCATGCCCG

```
TGGTACAGCATTCTGTTGAAGGGTGCTTCAGAAACAGTTACAGCTCAGAAGTTTCTTTTAG
                                                                                  9430
                                                                                                                                    9790
                                                                9500
                                                                                 9570
                                                                                                  9640
                                              9420
                                                                                                                                   9780
                                                               9490
                                                                                                                                                    9850
                                                                                 9560
                                                                                                                                                                      9920
                                                                                                 9630
                                                                                                                                                                                       0666
                                              9410
                                                                                                                                   9770
                                                               9480
                                                                                                                                                    9840
                                                                                9550
                                                                                                                                                                     9910
                                                                                                 9620
                                                                                                                                                                                       9980
                                              9400
                                                                                                                                   9760
                                                               9470
                                                                                                                                                    9830
                                                                                9540
                                                                                                                                                                     0066
                                                                                                 9610
                                                                                                                                                                                      9970
                                              9390
                                                                                                                                   9750
                                                               9460
                                                                                                                                                    9820
                                                                                9530
                                                                                                                                                                     0686
                                                                                                 9600
                                                                                                                                                                                      0966
                                              9380
                                                                                                                                   9740
                                                                                                                                                    9810
                                                               9450
                                                                                9520
                                                                                                                                                                     9880
                                                                                                 9590
                                                                                                                                                                                      9950
                                             9370
                                                                                                                                   9730
                                                               9440
                                                                                                                                                    9800
                                                                                9510
                                                                                                                                                                     9870
                                                                                                 9580
                                                                                                                                                                                      9940
                                                                                                                                                                                                       10010
```

TITCCAATGICAGCIGIGCAGIITITTCCCCAGICATCICCAAACAGGAAGIICITCCCIGAGTGCITGCCG

4. US.09-497-957-1 (1-10825) US-09-497-957-1 Sequence 1, Application US/09497957

4.02 2 0 Significance Mismatches Optimized Score = 10825 Matches = 10823 Conservative Substitutions Score Identity Initial S Residue 1 Gaps

1660 1670 1680 1690 1700 1710 1720	1730	1810 1870 GATGACAATAAGCAAAAGATATACAACATCAGGAAATCATGGGTGTTGTGAGAAAGGAAAGGTAGGAAAGGAAGG	1880 1890 1900 1910 1920 1930 1940 TCAGGGCAAGTCACTGGGGCTGACACTTGAGCAGAACATGAAGAATAAGAATGATTGACTGGGAG	1950 2000 2010 CASTATTICCCAGGCAACTGGGCCTGGCAAGTTGGATTAAAAGGGGGTTTTCCCAGCACTACTAT [	2020 2030 2040 2050 2060 2070 2080 COTOTOTOTOTOTOTOTOTOTOTOTOTOTOTOTOTOTOT	2090 2100 2100 2160 2160 2180 2140 2150 2160 GGGTATCTGTACACACCAACCAAATGTCTCTCTCTCTCTC	2170 2180 2230 2230 2230 2200 2220 2220 2230	2240 2250 2260 2270 2280 2290 2300 GTGCTGGGGGGTTGGGGGGCTCAGAAGGTTGTGCAGGGGGTTGAGGGTTGTGGGGGGGG	2310 2320 2330 2340 2350 2350 2360 2370 CCTGTAGGGGTATTGTAAAAATTGTAGGGGAGGGAGGGTTTTAAAAGATTGTAGGGGAGGGAGGGGTTTTAAAAGATTGTAGGGGAGGGAGGGGGG	2380 2390 2400  GGCTGCTATGCGAAACGAATGAAGGAGCACAATAAACCAGGAGGCCAGCCA	2450         2460         2470         2480         2520         2510         2520           AGTCCAGGAAGAGGTGGGCTGGCTGGGAACAGAAACGATGTCTCCTGAA	2530 2590 TATATTCTGAAGGAAGTTGCTGAAGGATTCTATGTTGTGAGAGAAAGAA
TITCCAATGICAGCIGIGCAGIITITICCCCAGICAICCCAAACAGGAAGIICITCCCIGAGIGCIIGCCG 800 810 850 860	# # # # # # # # # # # # # # # # # # #	940 950 960 960 970 980 1000 950 GGCGGAAAGAGTGGCGTTGGAATTCTTCACATTCCACCCAC	1010 1020 1030 1040 1050 1060 1070 1080 GGTCTCTAGGGTGGGGGCTCTGGGCTTTCCCCACTCTTGGCAATTGTTCTTTT	1090 1100 1110 1120 1130 1140 1150 1150 1140 1150 1150 1160 1150 1150 1150 1150 115	1160 1170 1180 1200 1210 1220 GATTTGCAATGTGCTGTGTAATTAAGAGGCCTCTCTACAAGTACTGATAATGAACATGTAAGCAATGCACT [	1230 1240 1250 1260 1270 1290 1290 CACTTCTAAGTTACATTTTCATTTTCATTTTCATGTTAGGGAGGTAGGAGGTAATATA TOTTTTCATTTTCATGTTAGGGAGGTAGGAGGTAATATA TOTTTTCATGTTTCATGTTAGGGAGGTAGGAGGTAATATA TOTTTGATTTTCACTAGGGAGGTAGGAGGTAATAATA TOTTGATTTTCACTAGGGAGGTAGGAGGTAATAATA 1250 1250 12780 1280	1300 1310 1320 1330 CGTTTATTACTAGAAGAAGAAGAAAAAAAAAAAAAAAAA	1370 1380 1390 1440 1440 1470 1420 14430 1440 TCTGGTTTCTGATGTTTCAAGTACTACTGCTTCTAATCTTAGTTGACAGTAGTTTTGAGTAGTTTTTTGAGTTTTTTTT	1450 1460 1470 1480 1510  TGTAGCACAGTGTTCTGTGGGTCACACGCCCTCAGCACTTTCAGTTTTGGTACTACGTGTATCC	1520 1580 1580 1580 1580 1580 1580 1570 1580 1580 1570 1580 1580 1580 1580 1580 1580 1580 158	1590 1600 1610 1620 1630 1640 1650 GCTTTGGTGGCAGAGCTCATTCATAGCTAGATCTTAAACATCACACTGCATTACAGGTTGA	1660 1670 1680 1690 1700 1710 1720 ATAATAAAATTTCATGAGCAGAAATATTCATGTTACAAGTGTAAATGAGTCCCAGCCAG

2660	CTCATGCCAAGGAGGAGGAGAGAGAGAGTTCTGAGCTCAGGAGTTCAAGACCAGCTGGGCAACAC	
2650	CAAGACCAGCC 	
2640	CTCAGGAGTT(             CTCAGGAGTT( 2640	
2630	LAGGAGGAGCCAAGGAGCAGATTCCTGAGCTCAGGAGT 	
2620	AAGGAGAGCA 	
2610	GGAGGAGGCC 	
2600	GCTCATGCCAAGGAGGAGGCCAAGGAGCAGATTCCTCAGGACTTCAAGACCAGCCTGGGCAACACACAC	

   AGTAGAA   5190	5260 CAAGTCC          CAAGTCC 5260	5330 CAATGCA          CAATGCA 5330	5. AGGAGAA        AGGAGAA 5.	548( GTCTCTC               GTCTCTC 548(	5550 CCAGTCT'        CCAGTCT' 5550	5620 GTGAAGG;               GTGAAGG; 5620	5690 AACATCAC         AACATCAC 5690	S7 CCCAATGC         CCCAATGC 57	5840 TNCCAGG1 	5910 AGCTGAGP         AGCTGAGP 5910	5980 TCTTTGTT         TCTTTGTT 5980
CAGGACCACCTTGAATTCTGCCCTGACACACTGGATTGGAGAGCAGAGACCGGGGCCTGGCCCACGAG	4400 4410 4420 4430 4440 4450 1000 4440 4450 1000 1000 100	4470 4480 4530 CTGCAGCAGTTGCTGGAGAGAGAGTGTTTTGGACCAACAGGTATGGTGGAAACACACTTCTGCCCC IIIIIIIIIIIIIIIIIIIIIIIIIIIII	4540 4550 4560 4570 4580 4590 4600  TATACTCTAGTGGCAGAGGTTGCAGGCCAGGAATCCTGGTTGGAGTTTCAGAGGTGGCTGAG	4610   4620   4630   4640   4650   4660   4670   4680   4670   4680   4670   4680	4690 4700 4710 4720 4730 4740 4750 TGAGACAGCCACAAGTCTTAATTCTTTTCTCCATGCATATGGCTCAAAGGGAAGTGTCTATGGCC	4760 4770 4780 4790 4800 4810 4820 CTTGCTTTTTATTTAACCATAATATTTAACCAGGGGGGGG	4830 4840 4850 4860 4870 4880 4890 CACGGTGGCTCACCCTGTAATCCCAGCACTTTGGGAGGCGGGGGGGG	4900 4910 4920 4930 4940 4950 6ACCAGCCTCACCACCACCCCCACACCCCCCCCCCCCCCC	4970 4980 4990 5000 5010 5020 5030 5040 CCTGTAGTCCCAGCTAATTGGAAGGCAGGCAAGCGCAAGCGGAAGTTGCACTGA 111111111111111111111111111111111111	5050 5060 5070 5080 5090 5100 5110  GCCAAGATCGCGCCACTCCAGCCTAGGCAGAGTGAGACTCCATCTTAAAAAAAA	5170 5180 ************************************

```
80 5540 5550 5540 5550 5550 5550 5540 65520 65530 5540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540 65540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 5700 | 5710 | 5720 | 5730 | 5740 | 5750 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 5760 | 

        40
        5850
        5800

        STGGAGCACCCCGGATCAGCCCTCATTGTGATCTGGGGTATGTGACTGATGAGAGCCAGG
        5890

        GTGGAGCACCCAGGATCAGCCCTCATTGTGATCTGGGGTATGTGACTGATGAGAGCCCGCGGTGGGGTATGTGACTGATGAGAGACCCCGTCATTGTGATCTGGATCTGGACTGATGAGAGACCCAGG
        5880

        40
        5880
        5890

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5950
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5940
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5990
```

								- · · · · · · · · · · · · · · · · · · ·				
GTCTGGCACCCTAGTCATTGGAGTCATCAGTGGAATTGCTGTTTTTGTCGTCATCTTGTTCATTGGAATTT 0 6060 6070 6080 6090 6100	6130         6140         6150         6160         6170         6180         6190           TGTTCATATATATAAGGAAGGAAGAAGGGGAAGTCTCTTAGTACTTTGC           TGTTCATAATATAAGGAAGGAGGGTCAAGGGGTCAAGGGGGAAGTCTTTAGTACTTTGC           TGTTCATAATATAAGGAAGGGGAAGGTCAAGGAGGAAGTCATTAGTACCTCTGC           6140         6150         6160         6170         6180         6190	6200         6210         6220         6230         6240         6250         6260           CCCAGGGCACAGTGGGATTTGGCATCCATGGGAACCATTTTTCTCATTATATTCT         111111111111111111111111111111111111	6270 6280 6230 6330 6300 6310 6320 6330  TTGGGGACACCAGCAGCAGCAGACAGACAGATAGTTCTCCCCAGAATGAAGTCTCTAATTCAAC	6340 6350 6360 6370 6380 6400  AAACATCTTCAGAGCCACCTACTATTTGCAAGAGCTGTTTAAGGTAGTACAGGGGCTTTGAGGTTGAGAAGT [	1.0   6420   6430   6440   6450   6460   6470   6480   CACTGTGGCTATTCTCAGAACCCAAATCTGGTAGGGAATGAAT	ACCCATGAGTCCTAAAGCAGGAGGAAGCAAATGCTTAGGGTGTCAAAGGAAAGAATGATCACATTCAGC	6560         6570         6580         6600         6610         6620           TGGGGATCAAGATGTTGAAGGAGAAGCTGGATTCCATTAGGTGAGGTTGAAGATGATGGG         111111111111111111111111111111111111	6630         6650         6670         6680           AGGTCTACACAGGAGCAACCATGCCAAGTAGGAGTATACTGGGAGATTAGAATAATTAC         111111111111111111111111111111111111	6700   6710   6720   6730   6740   6750   6760   19740   197	10   6780   6790   6800   6810   6820   6830   6840     GTAGGGAAAGAAGAAAGAGAGCCAGCTCATACAGAGTCTTTTGGGATATTGGGTTATGA	6850 6860 6870 6880 6890 6900 6910  TCACTGGGGTGTCATTGAAGGATCCTAAGAAAGGACGACCACGATCTCCCTTATATGGTGATGTTGTTA	6970 6980
TGCTGTTTTTGTCG 6090 610	6160 6170 AGTAGGAACAAGGGG 	6240 GCATCCATGGAAG 	6310 ATGGTTCTCCCCAG             ATGGTTCTCCCCAG 6310	6380 TTTAAGGTAGTACA              TTTAAGGTAGTACA 6380	6450 646 ATGAAATTGATAGC	6520 6530 CTTAGGGTGTCAAAG 	00 6600 ACTGGATTCCATTA 	6670 SAGTATAAGGCATAC 	6740 CCAATTATGCATTTC 111111111111111111111111111111111	6810 CAGAGTCCAAGGGTC 	6880 6890 GACCACGATCTCCC                         GACCACGATCTCCC 6880 6890	0969 0260
3AGTCATCAGTGGAA1 ) 6080	6150 GCAGGGTTCAAGTGA 	6220 623 GGCAGAGGGGATCTC 	6290 6300 IGGGAGACAGAAAT!                  IGGGAGACAGAAAT!	6360 6370 CTATTTGCAAGAGCTC 	0 6440 CCAAATCTGGTAGGG              CCAAATCTGGTAGGG	6510 GGCAGGAAGCAAATG 	6580 6590 GGATCTTGAAGGAGAAG 	6650 6660 CCATGCCAAGTAGGA 	6720 6730 GCGTAGCTATCACTCA 	0 AGAAGCCAGCTCATA 	6870 ATCCTAAGAAAGGAG                 ATCCTAAGAAAGGAG	6940 69
SCACCCTAGTCATTGC 6060 6070	6130 6140 TAATATTAAGGAAGA              TAATATTAAGGAAGA 6130 6140	00 6210 SCACAGTGGGAAGAG 	6280 ACACCAGCAGCTCCC'                  ACACCAGCAGCTCCC' 6280	6350 CTTCAGAGCACCTAC 	6420 643 GGCTATTCTCAGAAC             GGCTATTCTCAGAAC 6420 643	6490 6500 TGAGGTCCTAAAGCA               TGAGGTCCTAAAGCA	6560 6570 GATCAAGATAGCCTTCT	6640 ACACAGACGGAGCAA                  ACACAGACGAGCAA	6710 TTAACCCTGAGTTTG             TTAACCCTGAGTTTG	6780 679 AAAAGAGAATCAGAA 	6850 GGGTGTCATTGAAGG 	020 6930
CGTCTG( 6050	TGTTCA:        TGTTCA:	62 CCCAGG             CCCAGG	6270 TTGGGG       TTGGGG	6340 AAACAT         AAACAT	6410 CACTGT        CACTGT 6410	ACCCCA       ACCCCA	65 TGGGGA       TGGGGA	6630 AGGTCT       AGGTCT 6630	6700 TGTACC        TGTACC 6700	6770 GTAGGG        GTAGGG	TCACTG          CACTG	69

6990 7010 7010 7020 7030 7040 7050 7050 TGAATTCCAATAGGAAGAGGCAAG TGAAATTCCAATAGGAAGAGGCAAG TGAAATTCCAATAGGAAGAGGCCAAG TGAAATTCCAATAGGAAGAGGCCAAG TGAAATTCCAATAGGAAGAGGCCAAG TTGAAATTCCAATAGGAAGTCCCAGGTCTAAATTGAGGTGGAGGAAGAGGGAAGAGAAGAAGGAAG	7060 7070 7080 7090 7100 7110 7120 ATGGTGCCTAGGTTGTGTGCTCTTGTCTCCACAGGAGGACCATGGGGACTAACGT	7130 7140 7150 7260 7270	7210 7220 7270 GGGAGTGCATTTATGAGCTCTTCATGTTCAGGAGAGATTGAACCTAAACATAGAAATTGCCTGACGACT	7280 7330 7340 CCTTGATTTCGTCAAAAAGATTTCCCCATTTAGGTTTCTGAGTTCCTGCATGCTCTCTGCTGCTTCTCTCTGCTTCTTCTTCTTCTGCTTTCTTC	7350 7360 7310 7380 7400 7410 CGGTGATCCTAGCTGCTCTCCTCTCATGAACCTCAAGCTCCATCTAGAGGCTTCC .	7420 7430 7440 7450 7460 7470 7480 TCATTCCTCCGTCACCTCAGAGACACCCTATCCTTTCCTATTTTGGAAAGAGACCCTTCTTTTTTTT	7490 7500 7510 7520 7530 7540 7550 7560  AAATITGGGGGACTIACATITAACATCTGAGAAAAGCTTTGAACCCTGGGACGTGGCTAATCAT  [	7570 7630 7630 7630 7630 7630 7630 7630 76	7640 7650 7700 7700 7670 7670 7680 7700 7700 TCTGTGTTACCCAGTAACTCATCTGTCACAGCCTTGGGGATTCTTCCATCTGAGTGTGAGTGTGAGTTGCATGTGAGTTGCAGTGTGAGTTGCATGTGAGTTGCAGTTGCAGTTGTGGGGATTCTTCATCTGTGTAACTCATCTGTCACCCAGGGATTCTTCATCTGAGTTGCAGTTGTAGTTGTTGAGTTGCAGTTGAGTTGCAGTTGAGTTGCAGTT	7710 7720 7770 7770 CAGCTATGAAGGGCACCTGTCCCAGAAAAGCATCAGCTATTGTG CAGCTATGAAGGCTGTCACCAGAAAAGCATCAGCTATTGTG CAGCTATGATGATTGATGATGAAGAGCATCAGCTATTGTG CAGCTATGAGGCTGCAGAAAGGCACCTGTCAGAGCACCTGCACCAAGAGAGAAGCATCAGAGAAAGCATCAGAGAAAGCATCAGAGAAAGAGAAAGAA	7780 7790 7800 7810 7820 7830 7840 7790 7790 7790 7790 7790 7790 7790 77
--	--	--	--	--	---	--	--	--	--	--	--

. 7850 7860 7870 7880 7890 7900 7910 7920 7920 TAATTGGAAGTTTAATGGTGCTTCATTTGGAATGTTTAATGGTGCTTCATTTGGAATGTTTAATGGTGCTTCATTTGGAATGTTTAATGGTGCTTCATTTGGAATGTTAATTGGTATTTGGAATGTTGGAATGTTCAATTGGAATGTTGGAATGTTGTAATTGGAATGAAT	8010	### ### ### ### ### ### ### ### #######	ACGCCTGTAGTCCCAGCTACTCGGAAGGCTGAGGCAGGGAATGGCATGAACCCAGGAGGCAGAGCTTGCAGGAAGGCTGCAGGAATGGCATGAACCCAGGAGGCAGAGCTTGCAGGAATGGCATGAACCCAGGAGGCAGAGCTTGCAGGAATGCCTGAGCATGAACCCAGGAGGCAGAAGGCTTGCAGGAGAATGCCAGGATGACCCAGGAGGCATGAACCCAGGAGGCTTGCAGGAGAATGCCAGCATGAACCAGGAGGCATGCAGAGAATGCAGGAGAATGCAGAGAATACAGAAATAAAAAAAA	8430   8440   8450   8460   8470   8480   8490   8480   8500	864 ATCACA ATCACA ATCACA B64 8710 8710 AGGAAG AGGAAG

8720         8730         8740         8750         8760         8770         8780           TCCTGGAATGTGCTCTTTTGGCATTCTTTTGGACCCTACGCAAGGAC	8860 8870 8880 8890 8900 8910 8920 GAGTCAGAGTCAGAACTCAGAACTCAGAACTCAGAACTCAGAACTCAGAACTCAGAACTCAGAACTCAGAACTCAGAACTCAGAACTCAGAACTCAGAACTCAGAACTCAGAACTCAGAACTCAGAACTCAGAACTCAGAATTATTAGAAATCCAGAATAAATGGAAGAAACTCACATTATTAGAAATCAAATGGAAGAAACTCAATTATAGAAATCAGAATAAATGGAAGAAACTCAATATTAGAAATGGAAGAAAACTCAAATATAAAAACGAAAAAACTCAAATATAAAAAACGAAAAAAAA	8930 8940 8950 8960 8970 8980 8990 9000 AGCACCAAGTGGCTTAGAGGATGCCCAGGTCCTTCCATGGAGCCACTGGGGTTCCGGTGCACTTAAAAAA 1111111111111111111111111111	9010 9020 9030 9040 9050 9060 9070 AAAATCTAACCAGGACATTCAGGAAATCAGGAAATCAGTTCACCATGTTCAAAAGAGTCTTTT	9080 9090 9110 9110 9120 9140  TITITITICAGACTCTATIGCCCAGGCTGGAGTGCAATGCCATGGCTCACTGTAACCTCTGCCT	9150 9160 9210  CCCAGGTTCAAGCGTTCTCTGTCTCAAGTAGTGGGATTACAGGCGTGCACCATGCCCG	9220 9230 9240 9250 9260 9270 9280 GCTAATTTTGTATTTTAGTAGAGACAGGGTTTCACCATGTTGGCCAGGCTGGTCTCGAACTCTCGACC	9290 9300 9310 9320 9330 9340 9350 9360 TCGTGATCCGCCTGCCCTCCCCAAAGTGCTGAAATTACAGGTGTGAGCCACCCTGCCCAGCCGTCAAA 1111111111111111111111111111111111	9370 9380 9390 9400 9410 9420 9430 9430 9430 9430 9430 9430 9430 943	9440 9450 9500 TGGTACAAGCATTCTGTCTTGAAGGGCAGGTGCTTCAGGATACCATATACAGCTCAGAAGTTTCTTTTAG [	00 9530 9540 9555 PAAGATATCTCATCTTTTAAACCAT. 	9600
		860         8810         8920           AGTCAGAACTCTGGTGATATTCCCTCAATGAGGTGGAGTAAGCTCTCTCATTTTGAGATGGTATAATGG         111111111111111111111111111111111111	B850   B870   B880   B890   B900   B910   B920   B920	B850   B870   B880   B890   B900   B910   B920   B920	B850   B870   B880   B890   B900   B910   B920   B920	B850   B870   B880   B890   B990   B990	B850   B870   B880   B890   B890	B880	B860	B880	B860

CGCTGAGGGTTTTCCTGAAGGTAAAGGAATAAAGAATGGGTGGAGGGGGGGTGCACTGGAAATCACTTGTAGA

. US-09-497-957-1 (1-10825) US-09-497-957-9 Sequence 9, Application US/09497957 Initial Score = 677 Optimized Score = 786 Significance = -0.00 Residue Identity = 58% Matches = 895 Mismatches = 470 Gaps = 167 Conservative Substitutions = 0

1320

1280 1290 1300 AGGAGGTAGGAGCTAATAATACGT'	AGGTTACAAAGAACATAAATGTY 		60 GGCAAA     C CCTTC 1410	1630 1640 TATGATTCTTAAACATCACTGCACTGCACTTAAACATCACACTGCACTTAA	6. US-09-497-957-1 (1-10825) US-09-497-957-11 Sequence Initial Score 676 Opt Residue Identity 588 Mar	50 60 50 FO TTGAAAATCATAAATATTTAAA 120 130 ACACCCTTCAGGATTTAAAAA	190 200 21 CTGTAGGAGAGAAACTAAAGTTC 	TGAGCCTAGGCAATAGCTGTAGGTG 
270 280 290 300 310 480 490 500 510 520 53 3GGGTG-GAARARTC-GAACTTTTTTTTTTTGGGTG-TTTGCTAACTTT [1]	540 550 560 570 580 600 GCTCAACCTAATCGCAAGCCCCTCCTACTTTCTGCGACCCCGAGGGGGGTGCCTACCA	CT-GAACTGC-AGATAGGGGTCCCTCGCCCCGGCCTCCCCGGCTCTGCGGGGG-	750 760 710 810 810 810 810 CT - TGAGCTGAGCTGGGGCTCCTTGAACT - CGGGAACT - CGGGAT - TATTTCCAATGCAGGGTGGGG	820   830   840   850   860   970   CAGITITICCCCAGCACACCACACACACACACACACACACACACACA	880 930 930 930 930 930 930 930 930 930 93	980 1000 CACCATTCCACCCACTTTTGGTGAGACCTGGG	3GGAGG   1   1   1   1   1   1   1   1   1   1	1150

10-TAAGCAATGCACTCTAAAGTTA--CATTCATATCTGATCTTATTTGATTTTCACT-AGGCA---T 

```
1380 1410 1400 1401 TGGTTTTCTGATGTTTCAAGTACTACAGCT--GCTTCTAATCTTA
                                                       CIGIAGIGIAGCACAGIGITCI-GIGGGICACACGCGGCCI-CA-GC
                                                                                                                                                                                         1590 x 1610 1620 ATGGTACACTCTCCACTTCATAGC
                                                                                                                                                                                                                                         1650 1660 1670 1680 1690 ATTAGAGGTTGAATAAAAATTTCATGCAGGAAAATATTCATTG
                                                                                                                                                                                                                                                                                                                                                                                 TTTATTTTACTAGAAGTTAACTGGAATTCAGATTATATAACTCTTTTC
                                                                                                                                                                                                                                                                                                                                                          70 80 90 1100 1100 ACCTAGAGGAACATGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                            0 310 320 TEACTTCTGGAGCCATCCCGGTTTCCCCGCCCCCCAAAAGAAGGGAG
                                                                                                                                                                                                                                                                                                                         ptimized Score = 785 Significance = -0.00 atches = 894 Mismatches = 471 onservative Substitutions = 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      390
                                                                                        1470
                                                                                                                                                                                                                                                                                                                                                                                                                                    240
                                                                                                                                                                                                                                                                                                          11, Application US/09497957
                                                                                        1460
                                                                                                                                                                                                         230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      440
                                                                                        1450
                                                                                                                                                                                                                                                                                                                                                                                                                                    220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      420
```

 | 880 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930 | 930

  TTTA

7. US-09-497-957-1 (1-10825) US-09-497-957-10 Sequence 10, Application US/09497957 Initial Score = 676 Optimized Score = 786 Significance = -0.00 Residue Identity = 58% Matches = 899 Mismatches = 463 Gaps = 173 Conservative Substitutions = 0

1210 1220 1230 1240 1250 1260 1270  AACATGTAAGCAATGCACTCCACTTCTAAGTTACATTCATATCTGATCTTATTTGATTTTCACT-AGGCA	1280 1290 1310 1310 1320 1330 1340TAGGGAGGTAGGAATAATACGTTTATTATAGAGTTAACTGGAATTCAGATTATATAACTCTT	1350	1420	1480 1490 1500 1510 1520 1530 1540 -GCA-CAGCACTTTGGACTACGACATCCACATTTACACATACAAGAATGAGGACTGGCA - [	1550   1560   1570   1580   X   1610   CGGCTGCTTCTGGGGAATTTATTCAATGGTCTGGGGTTTGGTGGCTCAGGGTTGGTGTCTCCAGTTGTTCAT	1620 1630 1640 1650 1660 1670 1680 AGCIATGATCTTAAACATCACACTGCATTAGAGGTTGAATAATAAAATTCATGTGAGCAGAAATATCA 1690 TTGTTTA	8. US-09-497-957-1 (1-10825) US-09-497-957-12 Sequence 12, Application US/09497957  Initial Score = 675 Optimized Score = 785 Significance = -0.00  Residue Identity = 58% Matches = 89% Mismatches = 464  Cancer = 177 Concernative Substitutions	40 50 60 70 80 90 100 110 TITGAAAATATTAAATATCTAAAGTTCAGATCAGAACATTGCGAAGCTACTTTCCCCAATCAAC	AACACCCCTTCAGGATTTAAAAACCAAGGGGGACTTCACCTGATTTCAAGGCAGGACAACTGGATCTTCTG 	AACTAAAGTTCTGAAAGACCTGTTGCTTTTCACCAGGAAGTTTTACT LIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	100   100	330 340 350 360 370 380 390
10 220 230 240 30 430 440 450 11	310 510 520 530  FITCTITGGGCTTGGGAG-TTTGCTAACTTTGGTH	540  GCTCAACCCTATCCGCAAGCCCTTCCCTACTTTCTGCGTCCAGACCCCTGAGGGAGTGCCTACCA  GCTCAACCCTATCCGCAAGCCCTTCCTCTACTATTCTGCGTCCAGACCCCTGGAGGGAG	610 620 630 640 650 660 670  CT-GAACTGC-AGATAGGGGTCCCTCGCCCAGGACCTGCCCCTCCCCGGCTGTCCCGGCTTTCGGGAG- I II I I I I I I I I I I I I I I I I I	680 730 740 TGACTTTGGAACCGCCCACTCCCTTCCCCAACTAGAATGCTTTTAAATAAA	750 T60 800 810 810 CT-TGAGCTGAGCTCGTTGAACCTGGAACT-CGGGT-TTATTTCCAATGTCAGCTGTG	820   830   840   850   860   870	880 890 930 930 CAAACCACAGAGGATC-CGGGGTTTCCACT-CAGAACGAATGCGTTGGGCGTGGGGG	940 950 960 1010 CGCGAAAGACTGCGTTGGGGATCTGATCTTCACCATTTTGGTGAGACTGGGGTGGAGG 1	1020 1030 1040 1050 1060 1070  TCTC-TAGGGTGGGGGGCTCCTGAGAGAGGCCTACCTCGGGCCTTTCCCCACTCTTGGCAATTG	1080	1150 1160 1170 1180 1200 1200 1200 1200 1200 1200 120	1000 1010 1020 1030 1040 1050 1060 1060

```
150 160 170 180

3GGACACTGGATCACCTAGTGTTTCACAAGCAGGTACCTTCTG
                                                    Application US/09497957
                                                                                                 350
                                                                                                 340
                                                                                                 330
```

| 820 | 830 | 840 | 850 | 870 | 870 | 860 | 870 | 870 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871 | 871

  1690 TTGTTTA 9. US-09-497-957-1 (1-10825) US-09-497-957-21 Sequence 21, Application US/09497957 Initial Score = 516 Optimized Score = 516 Significance = -0.07
Residue Identity = 99% Matches = 516 Mismatches = 1
Gaps = 0 Conservative Substitutions = 0

GGGGATGGGACCTACCAGGGCTGGATAACCTTGGCTGTACCCCCTGGGGAAGAGCAGATATACGTGCCAG  270 280 300 310 320 330 5840 5850 5860 5870 5880 5890 5900 5910 GTGGAGCACCCAGGCCTGGATCATCTGGGGTATGTGATGTGATGATGAGGCCAGGAGCTGA 111111111111111111111111111111111111	All	11. US-09-497-957-1 (1-10825)  US-09-497-957-42 Sequence 42, Application US/09497957  Initial Score = 39 Optimized Score = 39 Significance = -0.26 Residue Identity = 97% Matches = 1 Gaps = 0 Conservative Substitutions = 0 3750 3770 3780 3780 3810 3820 CHARTHER ACAPTHER CHARTHER GASTAGE CONTROLLEGE TO THE CONTROLLEGE	3830 3840 3850 X 3860 3870 3880 X TITGAAGCITIGGGCTACGTGGATGACCAGCTGTTCGAGTCGAG	CGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGCTGAGGTCTGAAAGGGTGG 3970 3980 3990 GATCACATGTTCACTGTTGACTTC 12. US-09-497-957-1 (1-10825) US-09-497-957-41 Sequence 41, Application US/09497957	Initial Score = 39 Optimized Score = 39 Significance = -0.26 Residue Identity = 97% Matches = 39 Mismatches = 1 Gaps = 0 Conservative Substitutions = 0 3760 3770 3780 3790 3800 3810 3820 CTGTCTCCAGAGTTCACACTACCTCTTGATGGGTGCCTCAGAGCAGGACCTTGGTCTTTCTT	3830 3840 3850 X 3860 3870 3880 X TITGAAGCTITGGGCTACGTGGGATGACCAGCTGTTGTTCATGATNATGAGAGTCGCCGTGTGGAGCCC	3900 3910 3920 3930 3940 3950 3960 CGAACTCCATGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGGTCAGATCTGAAAGGGTGG 3970 3980 3990 GATCACATGTTGACTTC	13. US-09-497-957-1 (1-10825) US-09-497-957-30 Sequence 30, Application US/09497957
120 130 140 150 160 170 180  5700 5710 5720 5730 5740 5750 5760  ACCATGAAGGGATAAGCAGCCCAATGGATGCAGGGGTTCGAACCTAAAGGCTATTGCCCAAT 111111111111111111111111111111111	GUGGATUGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG	410 420 430 440 450 460 470  5990 6000 6010 6020 X 6030 6040 6050  TTAGGGGGTGGCTGAGGCTGAACAACAACATTAGTTTTTCTGTTTTTAGAGCCCTCACCGTCTG		5410         5420         5430         5440         5450         5460         5470           ACAAGCIGATCTGCTCCAACTGTTAGGGCCAACTCTTAGGACACAAATGGTGTCTCT         550         550         550         550         550           CTGTAGCTTGTTTTTTGTGAAAGGGTATTTCCTTCCTCCAACCTATAGAAGGAAG	5560 5570 5580 5590 5600 5610 5620  TTCCTGCTAGCAAGGGTAAACAATCCCTCTTCTTTCTTTTCTTGTCAAGTCCTTTTGTTGAAGTTAACAAGTGTGAAGTTTTTTTT	5630         5640         5650         5690           GTGACACATCATGACCACTCTACGGTGGGCCTTGAACTACTACCCCCCAGAACATC	5700         5720         5730         5760           ACCATGAAGTGGCTGAAGGACCAATGGATGCCAAGGACTTCGAACCTAAAGACTATGCCCAAT	5770 5780 5790 5800 5810 5820 5820 5820 5830 6666ATGGGACCTACCTGGGGAAGAGCAGAGATATACGTNCCAG

```
0 3850 x 3860 x 3870 3880 x x ACCIGGAILGCTCTCTATCAINAIGAAGTCCCCGTCTGGAGCCC ACCIGGATCCCCGTCTGGAGCCC ACCIGGATCCCCTCTGGAGCCC x ACCIGTCTGTCTTCTATCATCATCATGAGGTCCCCTCTGGA x 10 20 30 40
| 5860 | 5870 | 5880 | 5990 | 5910 | 5900 | 5910 | 5900 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 5910 | 
                                                                                                                                                                                                                                                                                      3920 3930 3940 3950 3960
CAGTAGAATTICAAGCCAGATGIGGCIGCAGAGCTGAAGGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3920 3930 3940 3950 3960 3960 CAGTAGAATITCAAGCCAGAIGTGGCTGCAGCTGAGTCAGAGTCTGAAAGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               770 3780 3790 3800 3810 3820 ACTCTCTGCACTACCTTTCCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     770 3780 3790 3800 3810 3820 CCTCTGGGGTGGGTGGGTGGGTGTTTGCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       = -0.26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        39 Optimized Score = 39 Significance = -0.26 97% Matches = 39 Mismatches = 1 0 Conservative Substitutions = 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6080 6090 6100 6110 6120 GICATCATCATTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  39 Significance
39 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1-10825)
Sequence 41, Application US/09497957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 (1-10825)
30 Sequence 30, Application US/09497957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1-10825)
Sequence 42, Application US/09497957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  39 Optimized Score = 39
97% Matches = 39
0 Conservative Substitutions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3990
TGACTIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3990
TTGACTTC
```

```
3910 3920 3930 3940 3950 3960 3970 TGGGTTTCCAGTAGAATTTCAAGCCAGATGGCTGCAGCTGAGTCAGAGTCTGAAAGGTGGGGATCACATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3640 3650 3660 3670 3680 3690 3700 GACTGCAACTCACCTTCACAAATGAGGACCAGACACAGCTGATGGTATGATGCAGGTGTGAGAG
3770 3780 3790 3800 3810 3820 3830 6GTTCACACTCTGCACTTCTTCTTGTTTGAAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    290 310 X 320 330 X 340 350 CTGGAGCCATCCCCGTTTCCCCGCCCCCAAAGAAGAAGGAATTTAACGGGGACGTGCGGCCAGAGCTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                360 370 380 380 400 410 420 GAAATGGGCCCGCGGGGCGGCGCTCTCTCCTCGTGATGCTTTTGCAGACCGCGGTCCTGCAGGGGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3780 3790 3800 3810 3820 3830 3840 GCACTACCTTGTTTGAAGCTTTGGGGGTTAGATGGTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3860 3870 3880 3890 3900 3910 3920 GTTCCFGTTTCAAGAATTCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         220 230 240 280 280 280 280 AGACCTGTTTTAGTGGGCATCTCCTGAGGCTAGGCAATAGCTGTAGGGTGACTT
                                                                                                                                                                                                                                                                                                                                                                                                      22 Optimized Score 22 Significance -0.26 100% Matches 22 Mismatches 0 Conservative Substitutions 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Initial Score = 20 Optimized Score = 20 Significance = -0.26 Residue Identity = 100% Matches = 20 Mismatches = 0 Gaps = 0 Conservative Substitutions = 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20 Optimized Score = 20 Significance 100% Matches 20 Mismatches 0 Conservative Substitutions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          19. US-09-497-957-1 (1-10825)
US-09-497-957-18 Sequence 18, Application US/09497957
                                                                                                                                                                                                                                                                                                                                          US-09-497-957-1 (1-10825)
US-09-497-957-31 Sequence 31, Application US/09497957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               18. US-09-497-957-1 (1-10825)
US-09-497-957-24 Sequence 24, Application US/09497957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAAAAGAAGCGGAGATTTAACG
                                                                                                                                                                                                                                                                                 PTCACTGTTGACTTCT
                                                                                                                                                                                                                                                                                                                                                                                                        Initial Score Residue Identity Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Initial Score Residue Identity Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 430
TIGCIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3850
TGAC
                                                                                                                                                                                                                                                                                                                                               17.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3840 3850 3860 3870 3880 X 3900
TTGGGCTACGTGGATGACCAGCTGTTCTATGATNATGAGAGTCGCCGTGTGGAGCCCCGAACTCCA
TGTTCTATGATCATGAGAGTCGCCGTGTGA

X 10 20 30 X
                                                                                                                                                5860 5870 5880 5890 5900 5910 5920 ATCAGCCCTCATTGTGATCTGGGGGTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3910 3920 3930 3940 3950 3960 3970 TGGGTTTCCAGTAGAATTTCAAGCCAGATGTGGCTGCAGCTGAGTCAGAGTCTGAAAGGGTGGGGATCACATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5720 5730 5740 5750 5760 5770 5780 ATAAGCAGCGAATGGGATGCCAAGTGGGATGGGACCTAAAGACGTATTGCCCAATGGGGATGGGACCTAACGGG
                                                                                  Optimized Score = 30 Significance = -0.26 Matches = 30 Mismatches = 2 Conservative Substitutions = 0
38 Optimized Score = 38 Significance = -0.26 97% Matches = 38 Mismatches = 1 0 Conservative Substitutions = 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           38 Optimized Score = 38 Significance = -0.26
97% Matches = 38 Mismatches = 1
0 Conservative Substitutions = 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  31 Optimized Score = 31 Significance = -0.26 96% Matches = 31 Mismatches = 1 0 Conservative Substitutions = 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        16. US-09-497-957-1 (1-10825)
US-09-497-957-44 Sequence 44, Application US/09497957
                                                                                                                                                                                                                                                                                                                                                                                                                           14. US-09-497-957-1 (1-10825)
    US-09-497-957-29 Sequence 29, Application US/09497957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15. US-09-497-957-1 (1-10825)
US-09-497-957-43 Sequence 43, Application US/09497957
                                                                                                                                                                                                                                                                                                                                            5930 5940 5950
AGAGGAGTGCCTGAGGAGGTAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .0 5940 5950
AGAGGAGTGCCTGAGGAGGTAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           30
838
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3980 3990
TTCACTGTTGACTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Initial Score Residue Identity Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Initial Score Residue Identity Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Initial Score Residue Identity Gaps
Initial Score Residue Identity Gaps
```

-0.26

CATC

20. US-09-497-957-1 (1-10825) US-09-497-957-13 Sequence 13, Application US/09497957

Initial Score = 20 Optimized Score = 20 Significance = -0.26 Residue Identity = 100% Matches = 20 Mismatches = 0 Gaps = 0 Conservative Substitutions = 0

TTGA

<b>~</b>			
			•